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ORIGINAL ARTICLES.

CLASSIFICATION OF THE CAUSATIVE FACTORS OF RAILWAY AND ALLIED INJURIES, BASED UPON THE KINESIC STATES ASSUMED BY THE INJURED INDIVIDUALS—ALONG WITH AN ANALYSIS OF 82,361 RAILWAY INJURIES.

BY WARREN B. OUTTEN, M. D., of St. Louis.

The investigator cannot fail to be appalled in reading the various estimates given by different statisticians concerning the number of personal injuries occurring in the United States, arising in and incidental to, different industrial pursuits. It is to be deplored that the statistics compiled by the Inter-State Commerce Commission are justly criticised for their imperfect showing. Notwithstanding this fault they give a basis from which important conclusions can be formed. The following show the number of injuries occurring upon railways for the year 1904:

	Killed.	Injured.
Interstate Road	9,984	78,247
State Roads	975	7,500
Trolley Lines	340	52,169
Total	12,299	137,916

We quote from W. J. Ghent, Watson's Magazine, which says, "When we pass from the record of particular industries to the general causualty record we are met by a mass of unintelligible figures. But Bulletin No. 83 gives the rate of fatal accidents in the cities, where registration is required, as 100.3 in each 100,000 population. For the whole registration record, as 96.3. On a basis of 80,000,000 population this would mean a yearly loss of from 77,040 to 80,240 lives. Mr. Frederick L. Hoffman, of the Prudential Insurance Company, in a letter printed in Robt. Hunter's recent volume, "Poverty," estimates the rate as between 80,000 and 85,000. This would mean from 64,000 to 68,000 killings. If we say that 25 are injured to every one killed and consider the fatal accident rate to be 80 in every hundred thousand we have it that 1,664,000 were killed annually, or are more or less seriously injured in the United States. If all minor

accidents were taken into consideration it is probable that a ratio of non-fatal accidents to fatal accidents would be nearly 100 to 1. This would mean approximately 4,800,000 minor wounds every year.

Notwithstanding the immense number of personal injuries occurring in this country, very little systematic work upon the part of the medical profession has been done in the study and interpretation of special cause. In this article now being written an endeavor will be made to systematically study and interpret special causes in railway injuries. Any one who has not had constant study and experience in the interpretation of special causes existing in railway injuries would be inclined to attribute too much influence to defective mechanical appliances, defective construction and to many erratic physical conditions arising in the operation of the railway. There is nothing in or connected with man, more amazing or confusing than his multiform mental states. There is no element about him, as a general thing, so little noticed when engaged in a selected vocation. The weightiest causes of accident are the most silent, insiduous and lest comprehended. In a vocation like the railway employe, where the handling of blindly obedient and enormous mechanical power is common, hence it becomes replete with repetition and seemingly unconcerned familiarity. It becomes evident to a student of special cause that as repetition and familiarity accrue in his pursuit, the more does the employe beget a propensitity to grow into transient states of absent mindedness, immediate phases of unconscious moods, wherein duty and dangerous surroundings are for the moment forgotten. A detailed account of many catastrophes properly investigated and from confidential interchange of opinion with employes in these catastrophes, have shown the writer that absent mindedness and other mental aberrant conditions are constant and fruitful causes of these railway wrecks.

Considering the immense number of personal injuries and fatalities the writer believes that it is the paramount duty of any one attending to these injuries to endeavor to bring to notice any point or points which aims to create a closer study of special cause with the hope that some protecting measure may be formed having in view a lessening of accidents, consequent injury and death.

The writer belives that if a close study be made regarding the employe's physical condition, so as to determine if there is any element or elements in the nature of his vocation tending to beget these mental states, especially should it be studied whether at any time overwork is too often indulged in, or whether an employe's habits tend to create physical condition which leads to a lack of proper mental tone. *In terse* study every element concerning the vocation, aiming to guard against the many physical conditions which are prone to lead to laxity or disturbance of normal mental health.

After thirty years' labor as a railway surgeon the writer is compelled to believe that no matter how many safety mechanical appliances are invented and used, no matter how rigid the discipline may be, no matter how closely inspection is carried and consideration of elements used in construction, catastrophes must and will occur unless some means can be applied to correct the employes' mental aberrent condition. A close consideration of special cause leading to railway accidents, establish the truth that from 15 to 20 per cent. of accidents are due to what executives call "negligence," and from 17 to 20 per cent. were unexplained.

It is to be understood that out of this 27 or 40 per cent. of accidents above mentioned are the cause of the most serious and destructive catastrophes occurring upon the railway. Again, out of this 37 or 40 per cent. mental aberration, in our opinion, is the most powerful and constantly acting factor. The real worth of various mechanical safety appliances is hard to determine, since they are as frequently overrated as underrated. While a combination of discipline, intelligence and perfection of mechanical detail must be at all times a powerful barrier to the occurrence of accidents still, just so long as railways and other industrial pursuits permit overwork, and are unmindful of the true, physical and mental condition of the employe, just so long will the worst form of catastrophe occur.

If the writer can direct or cause more thought and study to be given to conditions or causes leading to transient mental aberration occurring to employes in various industrial pursuits, he will consider that he has done something commendable. If numbers and gravity in extent of personal injuries are worthy of consideration, certain it is that no subject in medicine calls for more earnest and constant endeavor than that which looks to a lessening of personal injuries in general on railways and other industrial pursuits.

No element in all operative causes in the production of personal injuries is as important as the study and interpretation of conditions which may or are likely to lead to transient mental aberrations, having for their basis such states called absent-mindedness, transient unconsciousness of immediate surroundings. It is equally as important to study the conditions which lead to wandering and unfixed attention, since this leads to a loss of a sense of duty necessary in the normal operation of pursuits where mechanical power must be used and which should be properly guided and governed.

No endeavor at this time will be made to give the complete report from which these statistics are taken, as it would occupy too much space and not add materially to the value of this article. A brief sketch of the headings of the report will serve to indicate its scope.

First. Classes of the injured, which include accidents to employes,

accidents to outsiders, namely, citizens and trespassers, finally accidents to passengers.

The second heading of the report gives the various occupations of the injured, and show that 163 different occupations were held by the injured.

The third heading indicates the manner of injury occurring to employes, citizens, trespassers, and to passengers. Under this heading 167 forms of accidents are indicated.

The fourth heading indicates character of injury sustained with reference especially to the parts of the human economy involved. Thirty-five different parts of the body received lacerations; twenty-eight parts of the economy sustained abrasions, contusions affected twenty-six different parts, while twenty-eight different parts of the body sustained incised wounds; punctured wounds affected twenty-two different parts; gunshot injuries twenty-nine different parts; injuries to eye and ear thirty-two different parts; dislocations affected thirty-three different joints, while amputations were performed upon nine different portions of the extremities. Crushing injuries affected eighteen; burns and scalds, twenty-five; under sprains, forty-eight different muscles and joints were affected; fifty-five different fractures, and 73 general injuries.

The fifth heading in the report indicates the place of injury. The sixth, age of the injured individual. The seventh, nationality. The eighth, death record, etc.

The Number of Railway Injuries Tabulated by the Writer—General Character of Injuries.—According to tabulated list of railway injuries accumulated by the writer, during the space of twenty-eight years, the following will indicate the number of employes, citizens and trespassers, and passengers, injured. There are 82,361 injuries; 73,539, with 1,585 fatalities, occurred to employes; 3,293 injuries occurred to passengers, with 159 fatalities; 5,529 injuries to citizens and trespassers, with 1,379 fatalities. The following table indicates the character of injury:

	Not Fatal.			Fatal.			Total.	
	Emp.	Cit.	Pass.	Emp.	Cit.	Pass.	Emp.	All.
Abrasions	1338	98	94	....	....	....	1338	1530
Amputations	759	212	22	65	23	3	824	1084
Burns	2073	24	24	40	....	2	2113	2163
Concussions	202	71	43	30	....	8	232	354
Contusions	23645	1546	1573	36	3	1	23681	26804
Crushes	5426	378	100	112	31	8	5598	6055
Dislocations	905	39	39	3	....	....	908	986
Eye and Ear	3488	17	6	....	....	....	3488	3511
Simple fracture	4281	541	62	92	26	3	4373	5005
Compound fracture	544	37	12	54	6	....	598	653
Gunshot	112	13	10	12	4	....	124	151
Incised wound	1439	29	34	2	....	....	1441	1504
Lacerations	13614	914	661	34	62	....	13648	15285
Punctured wounds	1224	16	8	1	....	....	1225	1249
Sprains	11517	212	431	....	....	....	11517	12160
General	1387	3	15	1104	1224	134	2491	3867
Total	71954	4150	3134	1585	1379	159	73539	82361

Not fatal	79238
Fatal	3123
Total	82361

Under the head of injuries to "citizens" and "trespassers," it must be noted that two classes of persons are here considered. The "citizen" is generally injured by the train frightening the horses which the "citizen" may be driving, or when the "citizen" attempts to cross the railway tracks, and is run down by train, car or locomotive. The "trespasser" is one who courts injury by going on to the railway company's right of way, attempts to cross between the cars, or gets on railway company's trains without permission and with no desire to pay for passage; in common parlance, attempt to beat their way. Again, gets on track in way of trains, frequently when drunk, or sleeps on track. The "trespasser," as a general thing, is of the tramp species. One of the most noted points in the above list is the great difference in the mortality between the "citizen" or "trespasser," and other classes injured. It will be noted that out of 5,529 injuries to this class, there were 1,379 fatalities, almost one out of every three injuries were fatal. This arises from the fact of the great danger in which they place themselves, thus getting on track in front of trains and engines, jumping on and off trains in motion, and frequently thrown off moving trains by company's employes.

Manner of Injury Occurring to Citizens and Trespassers.—It has been already stated that the causes of the extreme mortality occurring in injuries to citizens and trespassers arises from the extremely dangerous positions in which they are placed, as well as their mental condition, since it is established that many of their injuries arise in consequence of these persons going on the company's track or right of way when drunk, or in mental moods courting destruction. The different headings of the manner of injury are self-explanatory. Injuries to "citizens" and "trespassers" occurred in 76 different manners. Horses frightened and running away, injuring drivers, 41, with 1 death; walking on track, 630, with 256 deaths; crossing between cars, 331, with 23 deaths; crossing tracks, 153, with 37 deaths; self-destruction 14, with 12 deaths; asleep and sitting on track 152, with 59 deaths; found on track 152, with 137 deaths; injured on right of way 79, with 9 deaths; injured on trains 123, with 6 deaths; falling from moving trains, 211, with 35 deaths; falling from trains 157, with 29 deaths; struck by hand cars, 120, with 52 deaths; struck by passing trains, 1,049, with 299 deaths; struck by switch stands 33, with 7 deaths; run over by trains 115, with 39 deaths; collisions 139, with 31 deaths; derailment of trains 203, with 25 deaths; coupling and uncoupling 36, with 2 deaths; jumping on standing trains 35, with 1 death; jumping on moving trains 446, with 62 deaths; jumping off of moving trains

487, with 62 deaths; jumping on trains 66, with 7 deaths; jumping off of trains 47, with 10 deaths; unknown 407, with 150 deaths.

Manner of Injuries Occurring to Passengers.—According to list tabulated 3,293 passengers were injured, and there were fifty-eight different ways in which they were injured. It can be said with truth that the passenger, like the rest of mankind, is more or less inclined to expose himself to danger where no necessity exists. His curiosity leads him into dangerous places, and injury is the result. He is constantly prone to exercise poor judgment, thus courting injury, and death as well. At times he assumes duties of railway employes and thus injures himself. The following are some of the ways in which the passenger is injured: Sudden jerking of trains caused 115 injuries, with 1 fatality; while alighting from trains 28 injuries; walking on track 23 injuries, with 3 fatalities; car door, window, chair seat accidents, 158 injuries; struck by flying missiles 47 injuries; struck by switch stand, mail cranes, etc., 84 injuries, with 3 deaths; crossing between cars 29 injuries, with two deaths; falling from moving trains, 140 injuries, 19 deaths; falling from standing trains 119, with 2 deaths; injured on train, 105; jumping from moving trains 115 injuries, with 9 deaths; jumping on moving trains 165, with 16 deaths; jumping on and off standing trains 59 injuries, with 3 deaths; collisions caused 949 injuries, and 54 deaths; derailments 891 injuries, with 13 deaths; self-destruction 2, with 2 deaths; climbing down ladder of cars, coupling and uncoupling cars, 5 injuries; crossing track from car to car and crossing track caused 37 accidents, with 3 deaths. Collisions only caused 949 injuries, leaving 2,402 injuries to be caused by derailments and other ways.

***Character** of Vocation Among Railway Employes, to Whom Injuries Most Frequently Occur, Along With Manner of Injury.*—The railway employs in its service almost every vocation, and in the list tabulated there are no less than 128 different positions occupied by the employe. Space will only allow the writer to mention the different classes most frequently injured. There were 10,150 injuries to brakemen, 406 resulted fatally; 1,077 boilermakers, with 2 fatalities; 1,811 B. & B. carpenters, with 15 fatalities; 1,715 carpenters, car carpenters, carpenter helpers and carpenter apprentices, with 2 fatalities; 2,936 car repairers, with 22 fatalities; conductors were injured to the number of 1,379, with 33 fatalities; 2,501 engineers injured, with 97 fatalities; 5,151 firemen injured, with 122 fatalities; 1,982 extra gang laborers, with 29 fatalities; 2,952 laborers, with 24 fatalities; 4,920 machinists, machinists helpers and apprentices injured, with 2 fatalities; 9,530 section laborers, with 166 fatalities; 1,214 section foremen, with 14 fatalities; 2,337 switchmen injured, with 71 fatalities; 1,146 shop laborers, with 5 fatalities; 3,197 yard laborers, with 60 fatalities; 990 coal heavers, 6 fatalities; 564 freight handlers, with 2 fatalities; 371 hostler helpers, 2 fatalities; 522 train porters, 7

fatalities; 336 painters and helpers injured, 1 fatally; 420 round house employes, with 3 fatalities; 434 truck repairers, 2 fatalities; 437 truckers, 1 fatally; 235 telegraph linemen, 2 fatalities; 419 watchmen, 14 fatalities; 991 wipers, 8 fatalities.

It will be seen that 2,501 locomotive engineers were injured, as compared with 5,151 locomotive firemen. Since they both occupy the engine cab it would be a pertinent inquiry why more firemen were injured than engineers. As a rule the engineer sticks to his seat box; the firemen pass backward and forward between cab and engine, thus making use of unstable footing and placing himself in the power of gravity. By the manipulation of the coal the firemen frequently have their fingers and hands damaged. It is quite uniform to find more than double the number of firemen injured, but usually the engineers' injuries are of a more fatal character than the firemen's.

As to the manner of injury, we find that in coupling and uncoupling cars, 5,452 injuries occurred, with 155 fatalities; 1,266 were injured in collisions, with 80 fatalities. Derailed trains caused 1,357 injuries, and 77 fatalities; backing and parting of trains, crossing from car to car, 427 injuries, 8 fatalities; repairing machinery caused 15,990 injuries, 49 fatalities; cleaning cars, engine guards, 445; handling coal and company material, 12,438, with 7 fatalities; falling from moving trains, standing trains, telegraph poles, scaffolds, trestles, etc., 3,903 with 205 fatalities; jumping from moving trains, cars, trestles, etc., jumping on moving trains, etc., 4,950 injuries, with 89 fatalities; struck by trains, cars, missiles, run over by trains, 7,568 injuries, with 229 fatalities. Minor accidents numbered 6,794, with 43 fatalities; stepping on rocks, boards, etc., 1,025; handling and dropping miscellaneous articles, 731; explosions of torpedoes, firearms, etc., 562 injuries, 12 fatal; loading and unloading cars, 584; sudden stoppage of cars, 227 injured, 1 fatal; crossing between cars, 279 injured, 18 fatalities; personal conflict, 302 injured, 1 death; heavy lifting, 813. Among the unusual accidents, struck by lightning, 10; shot by train robbers, 4; cyclone injuries, 9; explosion of engine, 37, 16 fatal; self destruction, 12, with 5 deaths; not specified, 174, with 9 deaths. Unknown, 483, with 67 deaths; ejecting persons from cars, 20; walking on track, 345 injuries, 53 deaths.

Classification of the Causative Factors of Railway and Allied Injuries.—If there has been any endeavor upon the part of authors to classify the causative factors of railway and allied injuries, the writer has been unable to discover the same.

There can be no doubt that system is needed in this direction, since a proper classification of these causative factors and their correct technical naming, may be the means of establishing a quick comprehension of the forces which have been engaged in producing railway and allied injuries.

It must be understood in the beginning that railway and allied injuries

arise as the result of the action and force resident in kinetic energy, or energy in motion, wherein the injured person or persons are exposed to the immediate effect through some interference with or abnormal action of kinetic energy engendered either in the person or persons injured, or agent of infliction. Hence, a study of the causative factors of railway and allied injuries is nothing more nor less than a study of kinematics, that division of mechanics which treats of the movement of bodies without reference to the force producing the movements. A railway train, locomotive, or trolley car, etc., etc., in motion, is in kinetic energy, and persons conveyed by this railway train, trolley car, etc., etc., are in kinesic state or surroundings, just so long as mechanical agents on railway trains, locomotives, trolley cars, etc., are controlled normally, and no abnormal condition disintegrates the kinetic energy of such agents, accidents are not manifest, but any abnormal condition arising which interferes with or disintegrates the kinetic energy existing in these agents results in a transference of the energy or force upon the conveyed person or persons.

Any attempted classification of the causative factors of railway and allied injuries must of necessity have special reference to the kinesic states assumed by the injured person or persons, since the mental operations of the injured person or persons are more or less constantly modifying or creating factors in the production of railway and allied injuries. Hence, the classification of the causative factors of railway and allied injuries offered by the writer is based upon the character of kinetic energy manifest at the time the person or persons are injured, with especial reference to the kinesic condition or state of the injured person or persons at time of injury, and not upon the kinesic state of inflicting agent.

Railway and allied injuries will be classified under four different headings.

1. "Accidents arising from kinetic-kinesic states."
2. "Accidents arising from bi-kinesic states."
3. "Accidents arising from mono-kinesic states."
4. "Accidents arising from un-kinesic states."

First, the kinetic-kinesic accident is where the mechanical agent, railway train, locomotive, trolley car, etc., etc., is primarily in kinetic energy, or energy in motion, and the injured individual is under kinesic sway, that is to say, being conveyed by the mechanical agent, such as railway train, trolley car, etc., as shown in collisions, derailments, parting of trains, backing up of trains, cars, etc., jerking of trains, etc., switching of trains; these accidents are all of a vehicular nature. The incident disintegration or interference with the kinetic energy in railway trains, etc., transfers part of the force in this kinetic train, etc., to the person or persons conveyed by them, thus creating the injury. These forms of accident are amongst the most fruitful in death, and of almost all forms of injury

they are the most constantly productive in begetting traumatic psychoneuroses, owing to the fact of suddenness of occurrence, and the more or less constant engendering of horrifying circumstances.

According to the tabulated table of the writer, out of 82,361 injuries, there were 6,407 accidents of this character, with 385 deaths.

Second. The bi-kinesic accident. In the bi-kinesic accident both mechanical agent, train, trolley cars, etc., and the injured, are successively in kinesic states. The mechanical agent being primarily in kinetic energy when gravity imparts additional kinetic energy to the individual in process of injury. Thus in falling off of moving trains, etc., jumping on and off moving trains, etc., being struck while on moving trains, by bridges, trestles, switch stands, mail cranes, posts, etc.

Bi-kinesic accidents (out of 82,361 injuries tabulated by the writer) number 4,615, with 444 deaths. In proportion to the number of injured are the most uniformly fatal, owing to the fact that there is almost a reduplication of the primary energy or force when the injury terminates. Falling off of moving trains is the most fatal form of accident occurring to the passenger.

Third. The Mono-kinesic. The mono-kinesic form of accident is where the injured individual from cause goes into kinetic energy along with the incident combined action of gravity, caused by sudden attacks of syncope, insecure footing, failure of grasp, etc., as in falling off of standing trains, etc., falling off of bridges, trestles, telegraph poles, falling into pits and cattle guards, or falling from unstable footing, such as icy ground, etc. This is the least fatal of all accidents, as a general thing, occurring upon railways. Out of 82,361 accidents, the mono-kinesic injuries numbered 3,768, with only 49 fatalities.

Fourth. The Un-kinesic. The un-kinesic accident is where the injured individual is in a more or less quiescent state while the inflicting agent is in kinetic energy. This form of accident includes repairing of machinery, cars, engines, bridges and buildings, handling company material, such as coal, ties, lumber, etc., coupling and uncoupling cars, etc., dropping articles on different parts of the body; struck by agents in kinetic energy such as cars, trains, etc., explosion of boilers, torpedoes, grind stones, shot by train robbers, tramps and persons unknown, struck by lightning, injured in cyclones, etc. The un-kinesic accidents out of 82,361 tabulated by the writer, numbered 67,573 injuries, with 2,248 fatalities.

Again, it is well to note at this time the peculiarities of injuries occurring under these several headings. Under the heading of "Accidents arising from kinetic-kinesic states," it was formerly supposed by earlier writers upon "Railway Spine," "Traumatic Neurosis," etc., that collisions were the great source of these troubles, but as time has come and gone this has not been proven to have been the case. Almost every form

of wound can be produced in the kinetic-kinesic accident: the contused, lacerated, punctured, incised wound, along with burns and scalds.

That their occurrence is a fruitful field for the production of the psycho-neuroses is constantly demonstrated, still, owing to the application of mechanical safety devices upon trains, cars, etc., we find a constant lessening of troubles in this direction. According to data accumulated by the writer one employe to 6,100 injuries, has something like traumatic psycho-neuroses, while for ever 111 of passengers injured, there is one case of psycho-neuroses.

From this data the unbiased investigator is forced to the conclusion that the traumatic psycho-neuroses occurring in railway accidents is largely a matter of age, predisposition, faulty environment, and suggestive treatment. The mere fact that a person has been in a collision does not indicate that of necessity such a person must have received either severe psychic or a corporal injury, since collision after collision occurs where the occupants of the rear cars are not sufficiently disturbed as to be made aware that a collision has occurred. Hence a close and correct history is necessary in order that it may be established that acting forces have been sufficiently severe to produce injury.

Regarding the bi-kinesic accident, it can be said that if there is any form of accident peculiar to railways it is this form. Falling off of trains in motion depend upon their severity as to the rate the train or mechanical agent is moving. Naturally a person falling off of a train moving at the rate of fifty miles an hour would receive a more severe injury, all things being equal, than when a train was moving at five or ten miles an hour. Again, the higher a person falls influences the severity of the injury. An employe falling from the top of a box car would receive a more severe injury than when falling from a slighter distance. It is an established fact that fractures of the inferior extremity received under these conditions are invariably very severe, especially when the bone protrudes through the skin, and at times penetrating ground or platform. So great is the local shock to the parts that a condition allied to trophic disturbance occurs, interfering with prompt healing, and often leading to amputation of parts. Falling off of and jumping off and on of fast moving trains are prone to create compression fractures, not only at prominent joints, but in vertical column and skull. Various joints exposed to injury from this source are contused in the most severe degree, and it is not infrequent to have the ankle, knee and hip joints irreparably injured.

There is no doubt that kinesic influences have decided effect upon men when brought under their action. Man's mentality when upon moving trains is affected in a more or less positive manner. At first there is mental exhilaration followed by soothing and placating elements, and at times the motion of a fast running train gives rise to sudden and over-mastering suggestions and impulses. Jumping on and off, or falling off of fast

moving trains are no doubt at times due to neurasthenic impulses. Again, it is established that kinesic influences are prone to produce in the engineer, motorman, etc., with long established runs, a tendency to absent-mindedness, conditions where at times these operatives under the placating influence of kinesis, lose for a more or less short interval of time their attention to the immediate calls of their vocation by inattention and by short periods of unconsciousness, by permitting their mind to go woolgathering, court accidents, such as collisions, derailments, and drawbridge accidents. Such peculiar mental conditions in railway employes like heterophomy, auto-hypnosis, mental absent-mindedness, no doubt explain many railway accidents placed under the head of cause "unknown."

While admitting that there are faults with the classification, yet at the same time it can be seen that the four divisions of this classification are reasonably lucid and plain. The kinetic-kinesic accident suggests at once the particular character of the accident, and brings to the mind a proximate idea of the force involved in its production.

The bi-kinesic accident certainly suggests in a most condensed manner the play of the forces engaged in the production of this form of accident, while the mono-kinesic accident suggests the by-play and acting power of gravity under psychic and physical conditions. Probably just fault can be found with the nomenclature of un-kinesic accidents. Yet the writer believes notwithstanding the great number of accidents which must be classified under this heading, the classification as a whole is reasonably definite.

It is just and reasonable to presume since in this country alone there are 1,664,000 persons, more or less, seriously injured and killed annually, and that there is approximately 4,800,000 minor wounds inflicted, some effort should be made to systematize and classify in whatever direction possible this important and constantly broadening field of traumatic surgery. If there be virtue in any specialty, it must arise from a consideration and elaboration of particular, peculiar and extraordinary elements contained in this specialty, the application of special manners, functions and usages engendered by increased information and study of principles and minutiæ.

Hence, any one familiar with railway and allied injuries must be forced to the conclusion that owing to the many particular, peculiar and extraordinary features they possess, that their special study is demanded and that they are legitimately a special study, which, when properly applied, will redound in associate benefit.

The writer hopes that no matter how imperfect the classification he now suggests may be, and that if not accepted it may lead to a better and broader consideration than has been given to this subject heretofore.

SYMPOSIUM ON HEAD INJURIES.*

INTRODUCTORY REMARKS: THE SCOPE AND IMPORTANCE OF THE SUBJECT.

By Frank R. Fry, A. M., M. D., of St. Louis.

It has been suggested to me to make some general remarks this evening on the subject of cranial injuries. I fear they will be very general and I promise they shall be brief. It does not require a great imaginative capacity to picture the genesis of the various cranial operations: the early, crude efforts to repair the cranial portion of the skull after injuries and to relieve the injured contents; to remove from the cranial cavity septic conditions and destructive growths and to overcome by operative procedure internal pressure. The developments which have occurred along each of these lines forms a history in itself. I shall not attempt to even briefly epitomize this. I shall be fortunate if by a few allusions to the same I may indicate our present status and how it has been attained. Especially on a joint occasion of this kind it is interesting and perhaps not unprofitable to trace the influences which have led to certain epochs in this great work, the respective contributions thereto by the surgeon and by the type of internist latterly known as the neurologist.

With the advent of asepticism came the renaissance of cranial surgery. Practically all the important work dates therefrom. Sheltered by aseptic possibilities the surgeon became as bold in his cranial work as he was elsewhere and he has at times kept the neurologist very busy in attempting to keep pace with him. Perforce of circumstances the role of the neurologist has often had to be that of censor, while he contended for certain conservative principles. For example, in cases of cerebral compression after injury the neurologist has shown the disadvantages of too hasty operation under certain conditions, and the advantages of undertaking carefully to formulate the indications which shall guide us. And again, when the surgeon was becoming too prolific in operations for epilepsy and neurosis of traumatic origin the neurologist attempted to assist him in establishing a dignified basis for this work. The important outcome of this nagging, if we may use so severe a word, has been to direct the surgeon to a study of the neurological side of his work. The neurologist is not in any sense envious of the surgeon's greater share in the work of cranial surgery. His only contention has been for a full and proper recognition on the part of the surgeon of physiological and clinical principles which the internist is willing to submit to his consideration. Neurologists are very proud of some of our surgeon-neurologists and point to them as exemplars to those who would essay cranial surgery. Sir Victor Horsley, by his animal experiments and close clinical study of diagnostic points, has attracted the

* Read before the St. Louis Medical Society, March 24, 1906.

attention of the neurological world as much as he has by his remarkable surgery. Dr. Harvey Cushing has made the best contribution to the subject of cerebral compression that has ever appeared; and also the best study of the sensory distribution of the fifth nerve. The leading cranial surgeons everywhere today are neurologists in some certain senses of the word.

Modern surgery is entitled to much praise for the technique and ingenuity expressed in its cranial work. Speed and precision gained by every care to detail have improved statistics from year to year. Sixty-five per cent of recoveries in operations on traumatic brain abscess speaks for itself. It is a stimulating figure. If it were possible to tell as fully the history of operated traumatic hemorrhage I believe it would show a proportionate gain.

The question of operation for the remote effects of trauma to the brain is much oftener a neurological than a surgical one. And it is here that the internist has labored most conscientiously to forestall unwarrantable and mischievous surgery and at the same time to establish a scientific, or at least a rational basis of procedure, or, as I have said before, a dignified basis, by which I mean a position in this matter that shall be different from that of the tyro or charlatan who stand ready to trephine on any pretext. The problems of this question are many and perplexing and in discussing them we are often misunderstood. However, the fact is gaining wider recognition that every instance of the kind should have a neurological sifting in the strictest sense of the word; and this after all is our main contention. I hope that a later speaker this evening will have something to say under this head.

The scope of this work grows with the improvement of surgical and neurological methods at a rate that keeps it before us as one of the great fields of scientific endeavor. Its practical importance has become a matter of daily demonstration in all great centres of surgical activity.

INDICATIONS FOR IMMEDIATE OPERATION IN HEAD INJURIES.

By M. A. Bliss, M. D., of St. Louis.

Immediate operation may be defined as a procedure for the relief of pressure and to stop bleeding, or to accomplish drainage, and done within the first few days following the receipt of the injury.

The function of the neurologist is to aid the surgeon in differentiating early between shock and brain injury, and whether hemorrhage has occurred and is continuing, or edema is present, or the symptoms due to so-called concussion or commotion and especially to localize injury.

It may save time to say that in the opinion of some of the best posted

surgeons of my acquaintance and in my own, that an injury, sufficient to produce partial or complete unconsciousness for a short period of time and subsequent dizziness, head pain, and other evidences ascribed to concussion or commotion is accompanied by lesions. In fact, cases of so-called concussion, after a free interval, are sometimes found to have received quite extensive injuries producing meningeal hemorrhage, etc.

It is true that cases of so-called concussion do not frequently come to autopsy and we are not in position to be dogmatic on this point, but where concussion has been diagnosed and the other injuries received elsewhere than the head have proved fatal a revision of diagnosis has been found necessary. The pathology seems to be largely a matter of degree, the disturbances not due to mere violent vibration of the brain cells, but to altered circulation.

The relatively free intervals occurring between the receipt of an injury and the occurrence of symptoms may be several hours and the recipient of the injury may have walked a number of blocks and perhaps declared himself not much hurt. Upon taking food or water into the stomach vomiting may occur, then drowsiness, gradually deepening into a stupor, from which the patient may be with more or less difficulty aroused. Shock would be excluded and hemorrhage almost certain.

A careful search for localizing symptoms having failed, hourly observations of the patient should be made, progressive symptoms indicating operation at site of injury as the promising point for discovery of clots. It has been recommended by Cushing that an opening be made in the temporal region intermuscularly for the relief of pressure where the site of injury is not ascertained and no localizing signs are present. We are frequently unable to say definitely that pressure due to edema or to hemorrhage, and if the latter whether epidural or subdural.

The future validity of the brain may depend on the prompt recognition of localizing symptoms which I will not describe, but I would especially emphasize the point that all head injuries should be carefully watched not only for such definite signs, but for the general signs including clouding of consciousness, deepening as time goes on, spasmodic movements, a change in reaction or difference in size of the pupils, motor restlessness, aphasia of any variety or degree, vomiting, slow pulse, or disordered breathing.

In event of a compound fracture, especially if the wound has been contaminated by street dirt, infection may take place and a traumatic leptomeningitis, with headache, fever, restlessness and clouding of consciousness. If not promptly relieved the added symptoms of abscess may occur, vomiting changed discs, slow pulse, deepening coma. Free opening, as thorough evacuation as possible, establishment of perfect drainage are indicated.

To summarize. Head injuries cannot be estimated as to severity immediately after their occurrence, apparently trivial external injuries being sometimes followed by symptoms of the gravest character.

Shock may as a rule be excluded if a free interval of appreciable duration occurs.

General symptoms, such as disturbances of consciousness, of pulse rate and breathing, vomiting, motor restlessness, spasmodic movements, etc., occurring after a free interval usually indicate hemorrhage even in the absence of localizing signs.

Lumbar puncture may be of service in diagnosis of hemorrhage.

Traumatic meningitis demands prompt and thorough drainage.

All head injuries of any severity demand constant watchfulness on the part of both neurologist and surgeon.

RELATION OF LATE EPILEPSY TO HEAD INJURIES.

By Sidney I. Schwab, M. D., of St. Louis.

That trauma of the head is an important ætiological factor in epilepsy has long been recognized. Echevirra's statistics show sixty-three out of seven hundred and eighty-three cases. Spratling's more recent series show eight-eight out of 1,323 and among 814 male epileptics a traumatic history was obtained in seventy as contrasted with eighteen out of 509 female epileptics.

The special point that this paper will attempt to bring out is the occurrence of epilepsy long after the initial trauma has taken place and when all traces of the original injury have disappeared. For the correct interpretation of cases belonging to this category all other causes which might of themselves produce epilepsy must be excluded, such as syphilis, alcoholism, heredity, etc. Even then there will remain a certain number of unexplained cases in which the existence of the causual relation of the trauma and the epilepsy is not apparent. Leaving the doubtful cases aside there is left a certain number of instances which develop epilepsy late, but in which the trauma forms the most readily acceptable ætiological factor. Such cases fall within the scope of these remarks and such cases frequently have a surgical interest.

How large a proportion of all cases of epilepsy might belong in this class is an open question, as no large series of cases has been studied with this point in view. Judging from the experience in private practice and clinical work and likewise from that of some of my colleagues the number must be sufficiently large to merit some attention.

Trauma and its relation to later developing epilepsy may be set down in this way:

(1) Epilepsy resulting immediately after or concurrently with a

trauma to the head as a direct result of the concussion following the blow without any well defined gross anatomical lesion.

(2) Epilepsy developing some time after the initial trauma without any well defined gross anatomical lesion of the brain.

(3) Epilepsy developing immediately with or after or later in the presence of a well defined anatomical gross lesion. Its type, as in the other cases, may be Jacksonian, partial or complete.

Convulsions occurring at the time of the head injury considered broadly as a concussion symptom are not necessarily true epilepsy. Such traumatic convulsions in certain sorts of brains appear to predispose to a later developing epilepsy irrespective of the localization of the original trauma.

If the lesion so occasioned is gross and if it remains as a source of cortical irritation, a well-defined epilepsy may afterwards develop irrespective of the kind of brain which is the subject of the injury.

A question of great interest and importance might be touched upon at this point. Epilepsy may be considered in the nature of a natural phenomenon which takes place in any brain under given conditions, or it may be thought that only certain kinds of brain will act epileptically, so to speak, under the same given conditions. The solution of this problem must for the present remain open, but at least this aspect of the question deserves some consideration in the final decision of operative interference. If we, for example, could in a given case determine whether the brain injured would react epileptically or not we might feel that the less chance taken with the latter sort of brain the more chance for the patient avoiding a subsequent epilepsy. In consideration of these views, head traumata, which are accompanied by convulsions, are to be looked upon as predisposing to a later epilepsy; especially is this so when the traumata occasion some definite injury to the brain, evidence of which is present.

In all cases of serious head injury the possibility of epilepsy should be carefully considered and should become an important factor in the final decision as to whether operative interference is to be resorted to or not. As a prophylactic measure in epilepsy this fact has not been given sufficient prominence.

From the neurological point of view and from the standpoint of this paper, operative interference is justified when there is evidence of a definite gross injury to the brain, which is within the reach of an operation. This interference is made more imperative if the trauma has caused convulsions in the first place as a part of the clinical picture. These convulsions are, however, not to be looked upon as epileptic in themselves.

In respect to the question of surgical interference in cases in which no evidence of gross lesion to the brain exists, the decision must rest on other factors of the case. There is further to be considered the advisabil-

ity of opening the skull in these cases, especially with the view of relieving the increase in pressure which even an injury that is not demonstrable might produce. This question must be regarded as still open. There does not seem to be much doubt but that operation at the time of injury in the proper cases would save a certain proportion from developing epilepsy at a later period.

The suggestion is here advanced and its need emphasized that in the presence of every serious head injury the neurologist, if one is present, th surgeon if he is not, should make accurate notes as to the seat and character of the lesion, the localizing data, if any are present, and any other clinical points, so that if epilepsy later develops and surgical interference is advised, the seat of the original injury may be accurately distinguished from the scars of the scalp, which may be the result of injuries from falls due to the epilepsy.

HEAD TRAUMA AND PSYCHOSES.

By Given Campbell, Jr., M. D., of St. Louis, Mo.

In this consideration of the relationship of trauma to mental disturbance I shall limit myself to the effects of head injuries damaging the brain and its membranes. Psychical disturbances secondary to injuries or surgical operations on distant parts of the body are not here discussed.

In so far as the brain is the organ of the mind, cerebral injury must lead to mental impairment, but in the majority of cases the immediate disturbance of consciousness is transient, and it is only very occasionally that mental disturbances sufficiently permanent and severe to be classed as traumatic insanity follow an injury to the head.

Among the mental disturbances accompanying head injuries, and not constituting insanity, may be classed the aphasias, the epilepsies neurasthenoid states, increased irritability and various kinds of memory loss. Especially interesting and not very infrequent is retrograde amnesia; a condition in which memory is blotted out not only of events occurring at the time of the injury, but also of everything for several hours, sometimes for many days, *before* the patient was hurt. Antegrade amnesia more commonly occurs, in which memory is lost for events following the injury. In these cases recollection often gradually takes place, as time brings complete recovery, the patient often remembering the events longest after the injury first, then gradually those nearer in time until often the incidents of the accident itself are recalled.

Trauma may produce mental disturbance in either of two ways. First, where the mental trouble is due to the destruction or altered function of certain brain areas involved directly in the injury, and secondly, where

the injury serves merely as the exciting cause and either initiates an insanity in an individual predisposed thereto by heredity, alcohol, syphilis or some other factor, or brings into prominence insanity previously latent and perhaps undiscovered. In many cases the first appearance of mental symptoms in paresis dates from some shock, whether it be a head injury or some purely mental disturbance. This will illustrate how trauma often merely hastens the evolution of a mental disease and brings the striking symptoms into such prominence that those about the patient are apt to attribute his whole condition to the injury, where his physician knows he previously presented the physical signs showing that such mental changes were certain sooner or later to break forth and that the injury merely hastened that which without it was sure to ultimately occur.

Among the mental conditions of which trauma is the direct cause we have the coma due to contusion with its coincident swelling of the bruised tissues of the brain. This edema or hemorrhagic infiltration is often considerable, and within the cranial cavity, which resembles a tightly closed box, its pressure produces many serious symptoms previously vaguely attributed to concussion. It is due to the better relief of this pressure that severe brain injuries with extensive fracture pursue a more favorable course than those in which the displacement of bone is slight. When the coma is slow to resolve it may lapse into a delirium with or without an alcoholic basis and this delirium may be protracted and merge into a psychosis much like that described by Korsakoff as occurring with alcoholic neuritis.

Besides the mental disturbances springing directly from the contusion of brain tissue, we have the later effects in which scar formation following the injuries plays a part and which are caused in part by the distinctly diffuse commotions in which, as Adolph Meyer expresses it, the *general* reaction, and the psychic elements preponderate, including the remote reactive results of exaggerations of vasomotor and emotional responsiveness. These effects vary from a mere irritability of temper with increased susceptibility to toxines, such as alcohol and grippe, up to complete dementia. To the psychical picture is often added the more focal effects of localized brain injury, such as the aphasias epilepsies and paralysis.

The symptoms above described if due to trauma should begin to manifest themselves within a reasonable time after the injury and in most cases merely constitute the post traumatic mental condition, which is common, while post traumatic insanity, due solely to the injury, is rare. This above described mental condition in most cases greatly improves as time goes by, but in certain cases a slow progressive disintegration takes place around the original areas of injury, the patient's character changes, local symptoms gradually supervene and a deterioration of

mentality often both psychically and in physical signs resembling paresis supervenes.

As to what brain areas are most apt when injured to produce insanity authorities are divided. It seems reasonably sure that a lesion small in size cannot do so, no matter where located. In other words, there is no one center for insanity. Phelps of New York, however, through an investigation of pistol wounds of the brain, claims that fairly limited lesions of the left pre-frontal region can alone produce insanity. While English, in the Hunterian lecture entitled, "The After Effects of Head Injuries on Mentality," delivered February, 1904, before the Royal College of Surgeons of London, concluded that, if rather diffuse, injuries to any part of the head can produce insanity. He summed up his results in the following words:

1. While some degree of mental impairment is comparatively common after injuries to the head, the changes are seldom sufficiently marked to be included under the head of insanity.

2. Insanity may result from injury to any part of the head.

3. Traumatism leads to insanity in two ways: 1st. Direct insanity, due to actual injury to the brain or its membranes apart from heredity or other predisposing causes. 2nd. Indirect insanity, that is to say any form of insanity occurring as a result of lowered resistance of the brain due to injury in patients with a predisposition to insanity, hereditary or otherwise.

4. Every variety of mental change may be produced by traumatism, although some are commoner than others.

5. It is at present undetermined whether injury to the prefrontal region is more likely to be followed by mental disturbance than injury to other parts of the brain.

He gives 10 per cent. of head injuries as followed by mental symptoms and 4 per cent. as followed by insanity.

The most characteristic mental changes following brain trauma are irritibility, emotional instability, increased susceptibility to alcohol, forgetfulness and lack of ability to do mental work.

In considering the part played by trauma in the production of paresis, the chief question will, of course, be whether trauma can produce paresis directly. That is: can trauma be the sole cause of paresis in an individual not predisposed thereto? An answer to that question depends on whether one believes or does not believe that every case of true paresis must have been preceded by a syphilitic infection; a question about which there is and always will be dispute. Evidence is constantly accumulating which in my opinion hardly admits of other conclusion than that paresis and tabes can occur only after the individual *has had* syphilis. The words *has had* are used advisedly for paresis seems to come after the syphilis rather than to be a part of it, and is not generally thought to be bettered

by anti-syphilitic treatment. The extent to which syphilis is concealed and denied, the readiness with which its slighter manifestations occurring many years before may be forgotten (for it is after benign syphilis that paresis is apt to supervene) the frequency with which its very existence is undreamed of by the patient and the fact that its acknowledgment must often come from a patient already too demented by the paresis to allow credence to his statements makes it readily understood that a history of syphilis cannot be obtained in all cases. Statistics as to the number of cases in which syphilis is known to exist, vary from 11 per cent. to 94 per cent. Most observers give as high as 60 per cent. Lange of Vienna is only able to find a history of previous syphilis in 36½ per cent. of cases suffering from tertiary syphilitic lesions, while the percentage of syphilis in other diseases of the nervous system is given as from 16 to 24.

The experiments made by Kraft Ebing several years ago, much commented on and then quickly hushed up, owing to the doubtful justification of his procedure, have, nevertheless, much weight. It being generally known that a second syphilitic infection is very rare, if it really ever occurs, this German scientist selected eight general paralytics in whom syphilis was denied and in whom there was no reason for suspecting its existence. These eight patients he inoculated in various parts of their bodies with secretions taken from fresh chancres. In no case did any syphilitic manifestations follow, thus rendering it very probable that these paretics in whom, save for their paresis, there was no reason to suspect syphilis, had yet suffered previously from that disease.

But while syphilis is very probably a pre-requisite of paresis, syphilis alone is not a cause. Kraft Ebing well summarized our knowledge in giving as the cause of paresis the combination of civilization and syphilization. When to the stress of modern life and perhaps a neurotic heredity is added syphilis, the factors necessary to paresis are present. If dissipation or a head injury is added the probability of paresis is greatly enhanced. As has been said, trauma can *directly* cause a condition rather closely resembling paresis and trauma *can* and very frequently *does* hurry forward the mental symptoms of paresis and in some patients previously syphilitic trauma *may, indirectly* cause paresis. That is to say: without the head injury paresis would never have occurred.

The writer begs leave to present the following conclusions:

1st. That mental change following head injury is common, insanity rare.

2nd. That head injury *can* be a sole cause of insanity, but more commonly is a contributing cause.

3rd. That in paresis the great probability of syphilis being a prerequisite makes it doubtful that trauma alone can be effective.

HISTORICAL.

ALEXANDER MONRO THE SECOND.*

By M. G. Seelig, M. D., of St. Louis.

Benjamin Ward Richardson (*The Asclepiad,* Vol. 7, 1900, p. 49) ends his account of the life of Alexander Monro primus with the sentence: "So closed the life of the first Professor of Anatomy and Surgery of one of the greatest schools of medicine the world has ever seen; a life right worthy of the beginning of that school, and worthy of its noble and splendid career, even until now." The term "School of Medicine" embraces the central thought of the formation and promulgation of new ideas, or the vigorous confirmation of old ideas rehabilitated. For us, the various schools of medicine possess historical interest from two points of view, namely, the relationship existing between the school, its predecessors and successors, and the activities of the individual members comprising the school. This interest is unquestionably intensified by the fact that since the latter part of the eighteenth and the early and middle part of the nineteenth century there have existed no bona fide schools of medicine. Broussais headed the so-called physiological school of France, Corvisart, Laennec and Louis represented the French physical diagnosis school; Skoda and Rokitansky were the representatives of the New Vienna school of pathological anatomy. Rudolph Virchow should be regarded rather as the expounder of the new and basic conception of cellular pathology than as the founder of a school.

Ever since the Renaissance the tendencies of the times have been toward the spread of knowledge. The invention of the printing press, circumnavigation of the globe, the introduction of steam power, the telegraph and innumerable other inventions have all lent their influence in this process of scattering learning, with the result that now the development of a new idea is no sooner announced than it is subjected to processes of confirmation or refutation throughout all the intellectual centers of the world. This universalization of knowledge, then, is the rational explanation of the fact that today we no longer have groups of men sharing with each other the distinction of monopolizing the exposition of new thought and generically grouped as a "school."

All this, by way of introduction to the presentation to you of an old book published in 1787 by a leader of one of the most famous (certainly *the* most famous of all Anglo-Saxon) schools of medicine. Alexander Monro secundus was the second man to hold the professorship of anatomy in the Edinburgh Anatomical School, a school developed largely by the efforts of Monro primus, with organized teaching and research as its

*Read before the St. Louis Medical History Club, May 31, 1906.

A

DESCRIPTION

OF ALL THE

BURSÆ MUCOSÆ

OF THE

HUMAN BODY.

THEIR STRUCTURE EXPLAINED,

AND COMPARED WITH THAT OF THE CAPSULAR LIGAMENTS OF THE JOINTS,

AND OF THOSE SACS WHICH LINE THE CAVITIES OF THE THORAX AND ABDOMEN;

WITH REMARKS ON THE

ACCIDENTS AND DISEASES WHICH AFFECT THOSE SEVERAL SACS,

AND ON THE

OPERATIONS NECESSARY FOR THEIR CURE.

ILLUSTRATED WITH TABLES.

By ALEXANDER MONRO, M. D.

PROFESSOR OF PHYSIC, ANATOMY, AND SURGERY, IN THE UNIVERSITY OF EDINBURGH;

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS AND OF THE ROYAL SOCIETY OF EDINBURGH,

AND FELLOW OF THE ROYAL ACADEMY OF SURGERY OF PARIS.

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M.DCC,LXXXVIII.

Title-page of Munro's book published in 1787.

aim, and perpetuated by the labors of such men as Monro secundus and tertius, John Bell, Charles Bell, John Barclay, John Gordon, John Innes, Andrew Fyfe, Alexander Walker, David Craige and William Cullen.

Alexander Monro the second was born in 1733, he was professor of anatomy in the Edinburgh school for 54 years and died in 1817 at the age of 84. Struthers, in his historical sketch of the Edinburgh Anatomical School, says that the elder Monro achieved his greatness, but that the second Monro was born great. He laudably lived through the most dangerous of successions, namely, that to a famous father, and he held his place intellectually among a coterie of truly great colleagues. He was appointed professor of anatomy at the age of 21, even before he had taken his degree or finished his studies in the university. Early in his career he manifested an inclination for medicine, and his father, from the outset, planned that his son should succeed him. After obtaining his degree, he completed his studies in London, Leyden, Berlin and Paris, thus coming in contact with William Hunter, Albinus and the great German anatomist Meckel. During his twenty-fifth year, he returned to Edinburgh and commenced his duties as Professor of Anatomy. As a lecturer he is described as being clear, earnest and impressive, possessed of a fund of medical, surgical, pathological and physiological information and of the ability to impart this information to his hearers. It is computed that during his entire professorship, his lectures were attended by 14,000 students.

Monro's early writings were controversial rather than investigative in nature, and it was not until he was fifty years of age that he began to publish the researches and investigations which have served to mark him as a great anatomist. His published works are too numerous for detailed discussion. Considering that he was a busy practitioner, indeed, the leading physician of his era, it is remarkable that he found time to extend his researches over such a wide field, embracing as they did, gross and histological anatomy, comparative anatomy, physiology and pathology.

Of all Monro's anatomical researches, the one best known today is his work on the bursæ mucosæ of the body, the treaties that we are to see tonight. It is a large folio of 59 pages, illustrated by ten plates and with a title page indited to the effect that the book is "A Description of All the Bursæ Mucosæ of the Human Body; Their Structure Explained and Compared With That of the Capsular Ligaments of the Joints, and of Those Sacs Which Line the Cavities of the Thorax and Abdomen: With Remarks on the Accidents and Diseases Which Affect Those Several Sacs, and on the Operation Necessary for Their Cure." Monro correctly states in the introduction that the subject of bursæ had been unaccountably overlooked. As evidence both of this fact and of his skill in dissection and observation, he describes 140 bursæ. He describes with great care the structure of these bursæ macroscopically and micro-

scopically and shows that they are similar in organization to the capsular ligaments of the joints. The synovial lubricating fluid of the joints and the glary mucilaginous fluid contained in the bursæ was a knotty milk in the cocoanut problem for him; still it is interesting to note how he arrived at a faulty conclusion, though reasoning from properly established premises. He knew that the bursæ and joints contained a lubricating fluid. The generally accepted explanation that this fluid was secreted by the fat pads which line and surround these structures did not satisfy him. He shows by experiment and reasoning that it is highly improbable that synovia is secreted by the fat, and yet, by a course of counter reasoning, he finally embraces the commonly accepted though erroneous view. His line of reasoning is as follows:

> Long before Dr Hunter wrote, and indeed long before he began to ſtudy, my father uſed to obſerve (*e*), and in his annual courſes of lectures to demonſtrate, that the marrow, viewed with the microſcope, looked like a cluſter of pearls. To this I had added the obſervation, that after a good injection of the veſſels, a vaſcular membrane could be ſhown ſurrounding each of the globules; and from which the marrow was beyond doubt ſecreted. I afterwards found, on
>
> on applying the microſcope in like manner to the fat, not only of man, but of other animals, that it is every where contained in ſpherical bags, painted with veſſels reſembling in ſize, as well as in ſtructure, thoſe of the marrow; none of which in diameter exceed the ſix-hundredth part of an inch, nor are leſs than one eight-hundredth part of it (*f*). Holes in the ſides of theſe bags, or ducts leading from them and connecting them to each other, are not diſtinguiſhable, even with a microſcope of high powers. In the hope of diſcovering more fully the texture of the adipoſe follicles, I have repeatedly examined with the microſcope the texture of large ſteatoms; in which I was a good deal ſurpriſed to find the follicles not only as regularly ſhaped, but nearly as minute as thoſe of the fat in a ſound ſtate: Nay, I have often in the ſame perſon compared the fat of the ſound cellular texture with that of a ſteatom, without being able to perceive any difference. I have, beſides, tried the experiment of holding a thin portion of fat between my finger and thumb, dipped into water heated to above a hundred degrees of Farenheit's ſcale, and preſſing it gently, without finding that the adipoſe follicles can by moderate preſſure be emptied or made flat; and globules of oil are not diſtinguiſhable, even with the microſcope, in the liquors taken from the abdomen, joints, and burſæ.

HENCE ſome may perhaps infer, that there are no holes or ducts leading from them of conſiderable ſize. At the ſame time, from the oilineſs which the ſurface of the ſkin, eſpecially in the negro, gets after exerciſe; from finding that the cruſts, procured by evaporating theſe liquors to dryneſs, are inflamable; from the greaſy feel of the omentum, or of the appendices epiploicæ of the colon even in a living animal; from the ſhortneſs of the omentum in man, compared with the great length of it in the quadruped, which we cannot account for in any other way, than that the body of the one animal was intended to be erect, and that of the other horizontal; and, in the laſt place, as we ſcarcely can ſuppoſe that theſe fatty bodies in the joints and burſæ and the omenta, ſerve merely as cuſhions for the defence of the ſecerning veſſels, and therefore cannot point out any other material uſe for the omentum and theſe fatty

fatty bodies but that of furniſhing an oily matter for the purpoſe of lubricating, I cannot ſee good grounds for doubting that the oil exudes from its follicles through inviſible paſſages into the cavities of the abdomen, joints, and burſæ.

In section IX (p. 39) under the heading, "Of the Cause of the Dangerous Inflammation Which Generally Follows the Wound of a Shut Sac, and of the Manner of Preventing It," Monro promulgates a doctrine of unusual historic interest. Pasteur in 1857 worked out his famous "Theorie des Germes," confirming the supposition that putrefactive processes were the result of germ infection, and showing that a sterile solution remained sterile if protected from accidental air infection. Ten years later, in 1867, Lister developed the practical application of this doctrine. Eighty years before Lister, however, Monro emphatically states his opinion to be that the danger of infection (p. 46) lies in exposure to air. It would be unfair partisanship to claim for Monro that he understood the rationale of infection, for he did not understand it, but what he did appreciate was that the exposure of a joint, or the peritoneal cavity, to air was followed by a fatal inflammation in the large majority of cases. He knew nothing of germ life. He believed the inflammation to be a sequitur to exposure, and he vigorously asserted this belief in such sentences as "nothing can be so pernicious as opening a (hernial) sac—the bowels ought to be returned without exposing them to the air."

Worthy successor to his father, practitioner, teacher, investigator, for forty years the leader of a great school, Alexander Monro secundus merits the judgment passed on his father of having lived "a life right worthy of that school and worthy of its noble and splendid career, even until now."

EDITORIAL.

THERAPEUTIC ERROR OF CHRISTIAN SCIENCE.

The presence of a large number of devotees to the Christian Science Church at about the same time that the American Medical Association met in Boston served to bring into sharp contrast two opposite tendencies in our intellectual development: the one representing the concentrated and the combined effort to advance our positive knowledge by the earnest use of exact methods of investigation, and the other representing the effort to substitute for that vague quasi-religious metaphysical vaporings. The question of the significance of this movement must have occurred to the physicians who saw some evidence of the growth of this newest sect.

It is not, of course, to be understood that the semi-religious mystic movement of the healing power of christian science should be dignified by any serious argument or comparison. To make such a comparison, it is in the first place essential that a common language be spoken, and the terms in which the comparison is to be made must be such that the average man can understand them. That this is out of the question, the slightest acquaintance with the literature of christian science will prove.

The point that is in need of elucidation has to do with the oft-repeated assertion, made not alone by laymen, but by physicians as well, that there must be in the tenets of christian science some fundamental truth, some intrinsic therapeutic force, which accounts for its apparent growth.

The only group of diseases which the healing power of christian science might be expected to reach is naturally that class to which we give the name of functional, referring especially to the neuroses of all sorts.

It is plain that the great advance which the therapeutics of functional diseases has made in recent years lies in the different attitude which the neurologist has learned to take in respect to a patient suffering from a disease of this kind. The gist of this changed attitude lies in the effort to do away with the sense of mystery formerly thought so essential for successful treatment. In place of this, such vital forces as explanation, persuasion, logical reasoning and a thoroughly honest presentation of such knowledge as we possess on the subject, form the main therapeutic endeavor of a physician in whose mind the force of this power has taken hold.

Christian science, utterly ignorant and utterly ignoring the fundamental fact of disease as a positive natural phenomenon, attempts to supply a metaphysical error so patent that it is ridiculous, and a mysticism that is devoid of even the poetical element which ought to be found in it if it has any reason at all for existence. Leaving aside all other

errors and all other reasons for the final disappearance of this false religion, this one fundamental defect should form the most vulnerable point of attack against the therapeutic side of christian science.

THE BUILDINGS OF THE HARVARD MEDICAL SCHOOL.

An impressive feature of the recent meeting of the American Medical Association in Boston was the new buildings of the Harvard Medical School, in which so many of the sections held their deliberations.

This group of buildings, classic in design and simple in their appeal to the sense of the beautiful, are to contain the laboratories and the lecture-rooms and the common meeting places of students of medicine. For the first time, probably, in the history of medicine—at any rate, since the days of the Greek temples—medicine is housed, as it deserves to be, in buildings dignified and impressive and significant of the place which it ought to occupy in the minds of its followers and in the thoughts of those who benefit by its progress.

The intention of those who planned the buildings, as well as of those whose inception they were the final result, must have been something more than the mere furnishing of adequate buildings for a new school. It is very possible that they saw the opportunity of adding dignity to an ancient calling and removing something of the dross which still clings to the practice of medicine, by training its future followers in a place where no such influence could be consistently tolerated.

COMMENT.

TOPOGRAPHY OF THE THORAX AND ABDOMEN.*

This monograph is the enlargement of a thesis presented at the Missouri State University in June, 1903, for the degree of Master of Arts. It is based upon anatomical laboratory work done at the University of Missouri in 1901. The object of the paper is to add to the few detailed observations upon the inter-relations of the organs as found in a single body. The body has been studied by means of sections with reference to the more important thoracic and abdominal organs and systems, which are described individually, giving in each case the topography of the part, its relations to surrounding structures, and a comparison with the literature of the subject. Though this method of study of anatomy has been in use since the days of Vesalius and Eustachius, it has passed through many stages of development. The first sections of the frozen body were made by De Rimier, a Dutch anatomist, in 1803. Henke devised a method in 1883 of establishing a vertical line representing the median sagittal plane of the body, crossed by horizontal lines representing the position of the sections from which the projections are made. This method furnishes data for the accurate projection upon the chart. It also marks the beginning of a new epoch in topographic anatomy, lessening as it does the liability to error. Blum first employed the use of formalin as a preservative in microscopic technique. This was afterwards used by Gerota in topographic anatomy. Jackson recently and independently has shown that by the use of a 50 per cent solution of formalin, it is not necessary to freeze a body before sectioning. This method affords certain advantages, inasmuch as the organs are hardened in exact form and position, and all parts except the bones may be cut with a knife, thus giving smooth, even surfaces.

The body which was used for this study was that of a man who just after a full meal died from asphyxia while cleaning an old well. The body was secured two hours after death, and was at once injected through the femoral artery with 50 per cent. formalin. Care was taken to have the body in a straight dorsal position, with the limbs normal. Within twelve hours the body was perfectly rigid. A few weeks later the trunk was cut into 25 cross-sections, with a long knife and saw. It was the intention to have each cut pass through an intervertebral disc, but this was not accomplished in every case. The surfaces of the sections have

*By Peter Potter, A. M., M. D., Associate Professor of Anatomy, St. Louis University, 1906. Published by the University of Missouri, $1.75.

been horizontal and parallel to each other, but those through the upper part of the thorax are lower and thinner in front than behind. The body was so thoroughly hardened that each organ shows the impression made upon it by adjacent organs, and retains its form, even though it is cut into relatively thin sections. The main structures of each section were identified without disturbing the relations of the parts. While every part was yet in its normal position, a cut was made of each section, by placing a thin plate of glass on its upper surface and tracing the outlines of the parts with a fine pen and india ink. These tracings were transferred to paper. In making the tracings, each line was drawn with the eye and pen directly over the same part, thus avoiding displacement on account of the thickness of the glass. After the permanent outline records of the undisturbed parts were thus obtained, each section was studied in minute detail. Every part was followed from its beginning to its end, through every section in which it appears. Vessels and other hollow structures were traced by passing a bristle through the lumen. Nerves, muscles, tendons and all solid structures were traced by dissecting the connective tissue away from one side of each, so that they could be followed through the section and definitely located in the next section. The following topographic lines and directions are used. The mid-line of a section is a line passing through the middle of the sternum or linea alba anteriorly and the center of the body of the vertebrae posteriorly. The mid-plane of the body is a vertical plane which contains the mid-lines of the sections. The mid-clavicular line is a vertical line through the middle of the clavicle. The mid-axillary is a vertical line through the apex of the axilla, when the arm is in its normal position. The plane connecting the two mid-axillary lines is the mid-axillary plane. The topography of the organs is described in minute detail; and the text contains many valuable observations on the relation of parts. This text, taken in conjunction with the reproduction of the plates, gives a most precise description of the anatomic topography of the trunk. Each of the 25 cross-sections is reproduced, and carries with it a short paragraph which explains its location. The lettering of the plates leaves nothing unexplained. In addition to these 25 cross-section reproductions, there are 10 plates which show the projection of the various internal organs upon the various surfaces of the body.

We feel, in observing this piece of work, that Dr. Potter is to be congratulated upon the high degree of accuracy maintained throughout its extent. It is indeed one of the most valuable topographical studies that has yet been accomplished.

IS MALARIA AS BLACK AS IT IS PAINTED?

This question is the subject of an editorial with the above title in the *Journal of Tropical Diseases,* for May, 1906, and comes at a time of the

year where in our beloved city also malaria begins to play a great part in our morbidity statistics and as a handy means to overcome difficulties in diagnosing obscure, trivial or serious troubles that without etiologic or pathologic knowledge cannot be readily classified under a definite pathologic process, as malaria or sequelæ of malarial infection. Fortunately most of these troubles subside by themselves and in spite of the administration of quinine to which the diagnosis of malarial origin leads. In serious conditions this fact may lead to serious consequences. The point is that not only in conditions directly exhibiting some of the clinical characteristics of malaria, very often the confirmation is not sought for by the demonstration of the presence of the parasites which only in typical cases may be omitted, but that without this demonstration in many cases the existence of a chronic or latent malaria is believed to be at the bottom of many pathologic conditions and symptoms without demonstrating it. There is hardly any of the common, mostly infective, but also constitutional diseases, that is not claimed to be able to be the effect of a malarial infection. They are all diseases that may appear at any time and without possible exposure to malarial infection, but when they occur in combination or in sequence of such infection the mind follows the beloved post hoc propter hoc reasoning and inculpates the plasmodium. The fact is that we have absolutely no evidence that any causative connection exists between the factors of such a complication. That malaria is, in the great majority of cases, a light disease, that it is, in almost all cases, easily amenable to treatment which, if properly administered, leaves the patient after recovery in the same constitutional condition as before the affection, is a fact. That under certain but rare circumstances it is followed by severe after-effects, and can even lead to death, is well known, too. But these effects, not complications, are so essentially different from the complications thoughtlessly attributed to a previous or existing malarial infection that they do not lend any assistance in justifying the assumption of malarial causation for totally different phenomena. The direct consequences of a severe malarial infection, the minute minority of all the cases, are so typical, that they do not bid fair to suggest that so many other complaints are due to the same cause. Malarial infection in our country, if properly managed, will never interfere with the constitutional qualities of a patient for a long period, nor will it produce lasting impressions. The decisive factor is the diagnosis at the proper time. Chronic neglected cases are a type so peculiar and characteristic that they cannot enter into the discussion here. The journal mentioned as freely and straightly discussing this question must be highly recommended. It goes to the bottom of the question, and is the more weighty because it emanates from a journal devoted to the discussion of tropical diseases. Koch has shown how comparatively harmless malaria is in countries where it is

endemic, where the children without any symptoms and disturbances have malaria as a children's disease and are immune against it during the adult life. The suspicion of a malarial causation of many not directly understood conditions is absolutely unjustified in spite of the teachings of text-books.

CERTIFIED MILK.

In an interesting resume, Stewart* gives the results of his examinations of certified milks in Philadelphia. Five of the six dairies whose milk was examined, were holding the certificates of the Milk Commission of the Philadelphia Pediatric Society, and the author's conclusion that these milks are among the best produced in this country, is probably justified. Yet the examinations showed that in a very considerable proportion of the tests, the samples fell below the standards required by the Philadelphia Board of Health for ordinary low-priced milk. The bacterial standard of 10,000 per cc. was, on the whole, well maintained, but it is noteworthy that milk from all the dairies had to be condemned at times on account of the excessive number of pus cells. It appears probable from these researches that one examination per month by the experts of milk commissions is not enough, especially in the summer months, because in nearly all cases, the equipment of the better class of dairies is in advance of properly trained help to run them. Special and frequent instruction is very necessary for the dairy attendants, and it should be considered part of the work of a milk commission to give such instruction.

The problem is certainly a most difficult one, and one of the causes of the difficulty is the expense to which the dairyman must be put for increased examination. These special examinations might very properly come within the province of municipal health boards. If the municipalities were willing to bear the expense, many of the difficulties attending the production of clean milk, would disappear.

The suggestive investigations of Stewart certainly show conclusively that even as regards certified milk, the price of purity is unceasing vigilance.

*Stewart: Certified Milk of Philadelphia, *Amer. Jour. of the Med. Sci.*, Apr., '06.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

ULCER OF THE STOMACH: PATHOGENESIS AND PATHOLOGY.—Turk (*Jour. Am. Med. Ass'n.*, Vol. XLVI., No. 23, page 1753). Turk gives the reason for the normal stomach not digesting itself, as follows: (a) General protection (1) "Sensitive Soul" (Stahl), (2) "Vital force" (Hunter), (3) "Vital resisting power of the tissues" (Riegal), (4) Alkalinity of the blood (Pavy), (b) Local protection, (1) Mucous acting as a protective coat (Vaughn, Harley), (2) Constant reproduction of exfoliated epithelium, (3) Anti-pepsin ferments residing in and as a part of the gland (Wineland). Previous investigator experiments on the production of ulcer are classified as follows: A. Mechanical; physical and chemical, injury with or without the presence of HCl. (Ritter, Becker, Mathews, Schmidt, Korte, Roth, Riegal, Ewald, Pawlow, Du Misinl, Agron, Kavetsky). B. General Dysemia (Virchow, Quinsy, Duetnoyer, Silverman, Futter, Conheim). C. Disturbance of local circulation (Virchow, Klebs and Welter Penum, Palma, Rindfleisch, Exclkey, Mueller). D. Injuries to the nerves and nerve centres (Scharff, Abstein, Brown, Sequard, Bedovor, Yecrew, Saitta, Ophuls, Koch and Ewald). E. Local infection (Conheim, Bawtcher, Mamwerck).

His experiments with mechanical, chemical, local infection, injection of toxin, systemic disturbances and injection of peptones were without results as to producing ulcer artificially. Six guinea-pigs and rabbits closely confined in small cages showed six ulcers, two spontaneous and four by local lesions. Experiments by inoculating and feeding the bacillus coli communis produced spontaneous ulcer in the gastro-intestinal tract in 100 per cent. His conclusions are, 1st, that ulcer of stomach and duodenum can be produced by feeding B. coli communis for variable length of time. 2nd, that a firm basis has been established to solve the etiology of ulcer. He suggests that the study of the blood changes, specially of the hemolytic, agglutinating, bacteriolytic, phagogytic strength of the blood, coagulability, reaction, action of serum on digestion, hemoglobin curve and the differential leucocyte count; that the pathology of ulcer in the different stages of development and also the conditon of the spleen, liver and bone marrow, be further studied histologically. That the altered metabolism be investigated by analysis of the excretions. That the production of ulcer by other bacteria and the susceptibility of other animals be determined.

SANITARY SUPERVISION OF PULMONARY TUBERCULOSIS AND OTHER COMMUNICABLE DISEASES BY THE DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK—Billings (*Medical Record*, Vol. 67, page 770.)—

The general procedure in cases of pulmonary tuberculosis, typhoid fever, cerebro-spinal meningitis, pneumonia, malaria, puerperal septicemia and erysipelas, which is exercised by the Sanitary supervision of the Department of Health of New York is as follows: 1. All cases of pulmonary tuberculosis, typhoid fever, cerebro-spinal meningitis, occurring in the City of New York are registered at the Department of Health and all necessary steps taken to render that registration as accurate and complete as possible. 2. Every person (or family of such a person) suffering from those diseases is furnished with instructions as to the measures to be taken to prevent its extension. 3. Beddings, etc., used by persons suffering from those diseases, is disinfected; all premises which have been occupied by persons suffering from pulmonary tuberculosis cerebro-spinal meningitis, on death, removal, or recovery of the patient, are disinfected with formaldehyde, or renovation is ordered. 4. Charitable assistance or hospital care is provided so far as possible for all persons wishing or requiring such assistance or care. 5. The general public is educated as to the nature of the above diseases, the precautions to be taken against their spread, the advisability of institutions and sanatorium treatment, etc. 6. Pulmonary Tuberculosis: Patients with no attending physicians are (a) visited at their homes by nurses and given necessary assistance and advice; (b) provided with extra diet (milk and eggs) when necessary; (c) Given free medical treatment at department clinics. 7. Typhoid Fever. Information as to probable source of infection (water, milk, oysters, etc.) is investigated in every case and suitable action taken. 8. Cerebro-Spinal Meningitis. Quarantine of patients at their home is enforced and other children in the family excluded from the school.

An Addition to the Clinical Symptom-Complex of Abdominal Arterio-Sclerosis.—Rosengast (*Munchener Medizinische Wochenschrift,* No. 20, May 15, 1906, page 966). Rosengast reports five cases of arterio-sclerosis of the gastro-intestinal tract and reviews the atypical findings of more or less localized arterio-sclerosis. He says that a tortuous temporal artery, as shown Kelemperers; a normal pulse; normal blood pressure, normal urine, etc., are not positive criterion for normal arteries generally. Also that these findings may be abnormal with stenocardia without stenosis of the coronary arteries. The symptoms from the gastro-intestinal tract in generalized arterio-sclerosis are frequently due to primary arterial changes of that system, instead of secondary conditions (passive congestion, reflex from heart, etc.). Some of the symptoms of this primary condition are rumbling and painful distention of the abdomen, especially in the right hypochondium; intermittent colic and regurgitation of gas, which gives a temporary relief; occasional hemorrhage; sometimes the passage of flatus with or without feces; irritability; restless sleep, the patient being disturbed frequently early in the morning by distention and pain in the stomach, which is sometimes relieved by sitting up and taking food; appetite good, bowels somewhat constipated. Physical findings are meagre. Digestion normal. Hcl. sometimes increased; pulse rate usually gradually increased; heart dullness enlarged; soft systolic sound and accentuated second aoratic sound;

and increased blood pressure. Alcoholics with eczema ani and hemorrhoids have frequently been observed to have this condition. The condition had remained undiagnosed for years until an attack of stenocardia has directed the attention to the cardio-vascular system. Men with strenuous occupations seem predisposed. As to the differential diagnosis many abdominal conditions must be differentiated according to the distention and localization of this condition as follows: Gall stones, appendicitis, foreign bodies in the ureter, intersusception, intestinal obstruction, ulceration, etc.

He illustrates the difficulty of diagnosis by three cases (Ronberge, Schmiddly and Ortner), which were operated upon under mistaken diagnosis.

Intestinal Syphilis. — Suarez de Mendoza (*Muenchener Medizinische Wochenschrift,* No. 21, May 22nd.)—Cases of chronic diarrhœa which would not re-act to ordinary treatment lead the author to give subcutaneous injections of large doses of mercury with very favorable results, and from those cases he has drawn the following conclusions: Intestinal syphilis is an affection which occurs more frequently than is commonly considered. It is usually located at the lower end of the ileum and the large intestine. Its symptomatology is so vague as to make a diagnosis very difficult. In a case of diarrhœa which does not react to the ordinary treatment one should consider hereditary syphilis, and institute specific treatment. The author has had cases which deny all syphilitic infections.

Auto-Intoxication.—Rovighi (*Muenchener Medizinische Wochenschrift,* No. 21, May 22nd). Rovighi says that clinical and experimental investigation which he has made since 1890 shows that the toxic products of the fermentation of the intestines (indol, skatol and ional) act (a) upon the nervous system; (b) upon the liver; (c) on the kidneys, and (d) on the blood and blood-producing organs. The toxicity of the urine is increased under pathological conditions, as in epilepsy, melancholia, etc., and these conditions are caused by constipation and disturbance of the gastro-intestinal function. Diet will produce a great influence on this condition of the urine. Saline purges, enteroclysis with boric acid solutions, will greatly decrease their production in the intestines. Abundant use of water, with active exercise, will increase the secretion of these products in the urine. One can accept that these products play a certain role in different clinical pictures of disease which their seat of action on the liver (congestion, dyspepsia, etc.). Also in the blood-producing organs, as the anæmia of schoolgirls, anæmia of gastro-enteroptosis, "Werthoffschen" sickness, and nervous diseases of different kinds.

Tubercular Endocarditis.—M. Rene Gautiere (*Gazette des Hospitaux,* 615, May 5, 1906). That this condition presents polymorphous lesions, and especially polymorphous clinical findings, Gautiere says, all could agree. He would not call it, correctly speaking, "Tubercular Endocarditis," but rather "Endocarditis occurring with tuberculosis." Ac-

cording to findings as given in classical cases, it might manifest itself as (1) a secondary infection; (2) a Koch bacillus infection with the local production on the endocardium of granulation tissue, etc., and (3) a tubercular toxemia (tubercular toxic endocarditis). The toxines could produce anatomical lesions of the endocardium (mitral stenosis, etc.) analagous to changes found in the joints in tuberculosis. The prognosis is usually fatal because the conditions occur most frequently in advanced stage of the disease. The diagnosis is difficult, because the general symptoms of the advanced stage mask the local findings and the extra-cardial murmurs prevent the recognition of endocardial murmurs. In some, the rythm and intensity of the extra-cardial murmurs is of prognostic value. In some cases it is characterized by valvular phenomena as mitral stenosis, which tend to arrest pulmonary tuberculosis, and in some stenosis of pulmonary artery, which has a fatal influence. It may also appear first as a rheumatism, which may disappear or be complicated by an endocarditis. It has occurred primarily as a common infectious endocarditis, and also with primary manifestation elsewhere, accompanied by secondary cardiac infection, demonstrated clinically by local and general findings.

The Production of Liver Abscess From Retrograde Emboli.—Risel (*Virchow Archiv.*, Bd. 182, H. 2).—Risel reports an interesting case of a man 27 years old with thrombosis of the sigmoid sinus secondary to otitis media and abscess of the heart, lung, spleen, kidney and liver. The abscess of the liver began in the veins of the liver, for which reason he establishes a retrograde embolism. He also succeeded in producing liver abscess by retrograde embolism in animals.

Abdominal Palpation.—Arnold Pollatschek (*Berliner Klinische Wochenschrift,* No. 21, May 22, 1906.)—Pollatschek recommends palpation of the abdomen in a warm bath in those conditions in which abdominal palpation is difficult for any reason, as thickness of abdominal walls, due to adipose tissue, uncontrollable rigidity, or contraction of rectus muscle, tenderness, etc. If this is not practical, he recommends an examination after prolonged application of heat to the abdomen in the form of poultices, etc. He says that this will overcome, to a great extent, any diffuse resistance by producing a relaxation of the abdominal muscles.

Destruction of the Right Kidney Followed by Oedema of the Larynx and Suppurative Pericarditis.—E. P. Bernet (*Le Journal de Medicine et de Chirurgie,* VI., No. 10, May 26, 1906.)—Bernet reports a very interesting case of a man of thirty-two whose family and past history was negative. He had been well enough to travel extensively entirely free from symptoms until a few days previous to the onset, when, after alcoholic excesses for one night, he was suddenly taken sick with pain in the throat, difficulty of swallowing, dypsnœa, and concomitant symptoms for which he was sent to hospital. The first examination demonstrated only œdema of larynx, which was relieved by local treatment. Two days later the patient's unsatisfactory condition demanded

another examination, during which a pericarditis was revealed, which, on aspiration, proved to be purulent (in the pus of which were found pneumococci in large numbers). As this did not improve the conditions pericardiotomy was performed with evacuation of two litres of pus, after which the patient was relieved of symptoms of dyspnœa, cyanosis, dysphagia, and was much improved generally for two days. At the end of that time œdema of the larynx reappeared, for which the patient was incubated, and later tracheotomy was performed without relief. No other abnormal condition was found. The urine examination was practically normal, with the exception of a trace of albumen; amount 1200 cc. No diagnosis was made. Autopsy showed (1) œdema of the larynx, congestion of the trachea and large bronchi; (2) distended pericardium with membranous patches on both layers, slightly adhering to the thoracic walls. Heart, large. (3) Congestion of the liver. (4) Right kidney destroyed and transformed into an enormous cyst, full of serum. Left kidney was twice the normal size, congested, but of normal color, cortical layer very thick; capsule not adhering. (5) All other organs normal. The œdema of the larynx and pericarditis were caused by the broken renal compensation induced by the alcoholic intoxication.

PATHOLOGY AND BACTEROLOGY.

IN CHARGE OF

CARL FISCH, M. D.

THE ACTION OF QUININE UPON THE TERTIAN, QUARTAN AND ESTIVO-AUTUMNAL MALARIAL PLASMODIA.—Chas. F. Craig (*Amer. Med.*, April-May, 1906). A very extensive study of malarial blood in all stages and conditions and in all forms of the parasite led Craig to a conclusion theoretically and practically of great importance. Following the teaching of German and other observers, the belief was, that quinine exerted its influence only on the very young merozoites, and that its administration had to take place at the time of the sporulation. Craig has found that all stages of the cycle of the parasites are influenced, except the stage just prior to sporulation. His observations were made upon fresh blood as well as upon stained specimens. He gives the results shortly in the two following theses: (1) "Quinine exercises an injurious effect upon the plasmodia of malaria during all stages of their human life cycle, whether intracorpuscular or extracorpuscular, except when it is given just before sporulation; at this time the sporulating body is not injured and sporulation occurs, but most of the spores are destroyed by the drug, while they are free in the blood plasma. (2.) The marked morphological changes, degenerative in character, produced by quinine in all species of malarial plasmodia, during all stages of their growth, prove that in order to secure the best therapeutic results the drug should be continually present in the blood. This is only possible when it is administered in divided doses at regular intervals of time.

Experimental Pulmonary Phthisis.—J. Orth (*Berl. Klin. Woch.*, 1906, May 4, p. 645.)—Orth has succeeded in producing typical lesions, identical with those of the human lungs, in guinea pigs, injected subcutaneously or intraperitoneally with tubercle bacilli. The lesions were in some cases limited to the lungs, forming smaller and larger cavities all through them. The difference in this tissue destruction, uniform through the whole organ, that in human phthisis is in most cases confined more or less to its upper portion is brought in connection with the different positions of the lungs in both species, horizontal in the guinea pigs, vertical in man. Of 12 guinea pigs inoculated with the same dose of the same bacillus 4 developed phthisis. The question why only they showed this lesion cannot be answered; it occurred under the most varied conditions of the experiment, while the others died of a miliary tuberculosis. Orth assumes individual conditions unknown to us as the factor. Besides the fact that here for the first time typical phthisis is produced artificially, not through the respiratory tract, but from the peritoneum or through the skin, another immensely important observation is made. While the teaching today is to attribute the phthisical lung affection to a complication of the tuberculous process with a pyogenic superimposed infection, or, by others, to make it dependent upon the latter alone, Orth, working under the strictest aseptic conditions, has in no case found mixed infection, the lesions always containing in sections, culture and animal inoculation only tubercle bacilli. How much this will change the accepted views on human phthisis cannot be predicted for the present. It, however, makes it very possible that phthisical lesions in man, too, may be purely due to the action of tubercle bacilli.

Spirochæte in Relapsing Fever.—Papers by Carlisle, by Morris, Poppenheimer & Flournoy, by Novy and Knapp (*The Jour. of Infect. Diseases,* Vol. 3, No.3).

About Cultivation of Spirochætes and Fusiform Bacilli on Artificial Media.—P. Muchlens (*Deutsch. Med. Woch.*, 1906, No. 20.)

Remarks About the Demonstration of Spirochæte Pallida Within Tissue.—Erich Hoffman (*Deutsch. Med. Woch.*, 1906, No. 22). The most thorough investigation of spirochæte infection in man is reported in the papers published in the last issue of the Journal of Infec. Diseases. The cases studied in New York and the experimental research of Novy on an organism derived from another case of relapsing fever have revealed the so far very obscure character of this infection. By Novy the proof has been brought, that spiroch. Obermeieri has the same relations to the human organism that other bacteria have. He has studied the reactions and has found immunity products absolutely analogous to those produced by other pathogenic bacteria. It is impossible to enter into the details of the complex array of experimental results brought together into this classic work. The course and etiology of relapsing fever, and with it those of related diseases, the tick fever of Africa and South America, a number of animal spirochætoses are by it brought to as clear an understanding, as that of well-known other bacterial infections. The work resulted even in the evidence of the possibility of sero-therapeutic procedures for prophylactic and curative pur-

poses. The difficulty lies in practical obstacles that so far prevent the activation of these measures. A short review of the methods used by Novy and Knapp to lay bare the life-cycle of Obermeieri's organism and all its complex relations to the human organism is not possible. Only one point may be touched upon here, that on the present discussion of the syphilis etiology has a great bearing. For the spirochætes of relapsing fever and with the highest probability for the nearly related other spirochætic diseases in man and animal Novy has established the bacterial character of the organisms. There seems to be no doubt that these spirochæte are bacterial in their morphologic and biologic character, having in these nothing in common with so-called sporozoic parasites. The etiologic factor of syphilis, also a spirochæte, has from its discoverer been stamped as a protozoon, with characters suggesting a trypanosoma stage. To him this suggestion easily came by work on organisms, in which a spirochæte stage was a stage in the course of the cycle of development. In syphilis, where protozoa had been suggested as cause in view of the failure of discovering a causative bacterium, he found constantly the spirochæte pallida. Certain phenomena were observed separating it seemingly from the so far known spirochætes, phenomena about the character of which there is even today no uniform opinion. We have even now no certainty whether the pallida has to be classed as a relative of the Obermeieri or whether it has only its shape in a certain stage of its life, and in the others appears in forms so far unrecognized. Novy insists on the bacterial character of the pallida, and, so far as conclusions from analogy can go, the weight of evidence is in his favor. As long as no experimental evidence will decide the question, it is useless to give the one or the other opinion as the most probably true one. It must, however, be said that Schaudinn himself has become less positive about his first suggestion, and that he leaves, more or less, the decision to the future. The latest paper of his collaborator, Hoffmann, shows the same inclination to a change of conception. In this connection, the paper of Muehlens is of interest, who succeeded in cultivating the spirochæte dentium on serum media under anaerotic conditions in pure culture. As the cultivation of blood after Novy's method with spirochætes has in every case given a negative result, the relationship to trypanosoma-like organisms has not become more probable. It must, however, not be forgotten that Schaudinn never thought of it, considering the name of trypanosoma only as a morphologic expression of stages of the development in certain protozoa. That in spite of the tendency to class spirochætes as bacteria, there must be something mysterious, as yet, about them, is shown by the attempt to demonstrate their interchangeability with typical bacterial forms, as, for instance, the conclusions drawn by Tunnicliff from her cultivation of fusiform bacilli with gradual transitions into spirochæte. Her results have not been corroborated by Muehlens, who, to a degree, accounts for them by the fact that spirochætes make their appearance in cultures only late. The pictures given by Tunnicliff do not suggest the so-called transitions to a spirochætic character, nor that the perfect spirochætæ have anything to do with those found in the original material from which the cultures started out. The result of all

this work is for spirochæte Obermeieri and relatives a full establishment of their life, etiologic role in diseases, and of the course, prevention and cure of these diseases. The spirochæte of syphilis so far is too little known to bias further studies by preconceived ideas. Its etiological importance is established, the more so, as a nearly related infection, yaws shows an almost identical micro-organism.

About Tuberculosis in Infants. — P. Geipel (*Zeitchr. f. Hyg. u. Infect. Krankh.*, Vol 53, Heft. 1.)—Geipel reviews the results of a careful pathological and anatomical study of tuberculosis in infants less than one year old. It is the first time that such a large material of this age has been worked out so minutely. Eighteen of the cases were less than six months old, 14 from six months to one year. In all of them the picture of the disease was that of a general dissemination. The explanation for this fact can only be looked for in special conditions present in the organisms of an infant. The power of resistance is very slight, the tissues do not show that varying degree of resistance which is the rule in later life. One thing is certain: that the existence of a latent tuberculosis cannot be demonstrated anatomically. The mortality reaches 100 per cent. That means that all infants acquiring the infection will die of it. Whether the author is justified to assume that the port of entrance must be in the first place the respiratory tract, must be doubted. The last years have taught so much in this line, that general conclusions from autopsy observations cannot be any more considered as binding as to the primary lesion. He is correct in finding the source of infection in all cases in tuberculous individuals coming in contact with the infants.

DIAGNOSIS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

Concerning Sahli's Desmoid Reaction.—Max Einhorn (*Deutsch. med. Wochenschr.*, 1906, No. 20.)—Sahli's desmoid test of gastric digestion is based upon the observation of Ad. Schmidt that cat-gut is digested by the normal gastric juice, but is never, if it escapes destruction in the stomach, digested in the intestine. Sahli accordingly places a small amount of iodoform or of methylen blue in a gutta-percha bag, ties the latter securely with raw cat-gut and administers the whole, like a pill, immediately after a meal. The normal gastric juice will dissolve the cat-gut thread and cause an appearance of iodine in the saliva or of methylen blue in the urine, as the case may be, in about 12 hours. If the reaction appears within 4 to 7 hours a hyperacidity may be assumed; if the reaction does not appear at all, or at least not until the next day, a motor or secretory gastric insufficiency exists.

Einhorn disputes the validity of all of these inferences on the fundamental ground that cat-gut is digested not only in the stomach, but also in the intestine. He administered pearls of cat-gut imbedded in solid

mutton-fat. It is clear that the fatty envelope could not be digested off, setting free the cat-gut, until the bolus had reached the intestine and had been submitted to the action of the pancreatic juice. Nevertheless the examination of the stool of these individuals showed a complete digestion of the cat-gut, a process that must have taken place in the intestine. Moreover, he reports 4 cases of complete achylia gastrica in which the desmoid reaction appeared within the normal limits. He therefore concludes, and apparently correctly, that Sahli's desmoid reaction, attractive as it may appear in its simplicity, has no clinical value.

The Prophylaxis of Gastric Hemorrhage.—I. Boas (*Deutsch. med. Wochenschr.*, 1906, No. 18.)—Boas once more urges the importance of the routine examination of stool and stomach contents, in cases of gastric ulcer, for indications of occult hemorrhage. Even where macroscopically there is no sign of bleeding, a careful chemical examination may reveal the presence of altered hemoglobin. Unfortunately none of our tests for traces of blood in stool or stomach contents are quite satisfactory. The methods hitherto chiefly used, particularly the guaiac-turpentine method, the aloin method or the benzidin method recently commended by O. and R. Adler and by Schumann and Westphal, in a word all simpler clinical methods depending upon the oxidizing power of blood pigment, are faulty in that their results are not quite unambiguous. Even the more complicated methods, possible only in hospitals with well-equipped laboratories, such as the spetroscopic method, which requires a large amount of material, do not avail to distinguish blood due to occult hemorrhage from that ingested with the food. It will be only when a clinical method, enabling us to distinguish with certainty between human and animal blood, has been worked out, that the chemical tests for blood in stool or vomit will give us certain and pathognomonic information. Till then, we must endeavor to counteract the faults inherent in the methods by conducting our tests with the greatest care, if possible with a meat-free diet, and by interpreting our results with the greatest caution. Nevertheless these tests for occult bleeding, especially in suspected gastric ulcer, are quite indispensable and should be done repeatedly in every suspicious case. Not only are they of the greatest diagnostic importance, but they are also our only means of detecting and thereby often preventing an impending serious hemorrhage.

A New Urinary Test for Santonin.—Neuhaus (*Deutsch. med. Wochenschr.*, 1906, No. 12.)—It is occasionally of importance to recognize the presence of santonin in the urine, not only because it may simulate pathologic constituents, such as sugar, but also because we may desire information as to the degree of absorption when the drug is given in intestinal disorders.

To a few ccm. of urine several drops of Fehling's solution are added. A dark green color appears, which, on adding more of the solution, turns a reddish violet. If now acetic acid be added, the color becomes a characteristic bright green. The urine of children who have taken santonin in the usual doses always shows this reaction typically; in

adults it appears only after the ingestion of comparatively much larger doses.

Autoseroprognosis.—Landolfi (*Gazz. d. Osped.*, 1906, No. 24.)—A valuable means of ascertaining the nature of a pleuritic or ascitic exudate consists in injecting small amounts of the fluid hypodermically into the patient himself from whom it was obtained. A rise in temperature following the injection speaks for the tuberculous nature of the exudate. Moreover, within certain limits, the prognosis is graver the smaller the amount of fluid necessary to produce a rise of temperature, the more quickly the fever appears and the longer a time it continues.

Vocal Fremitus in Croupous Pneumonia.—Arneth (*Muench. med. Wochenschr.*, 1906, Nos. 17 and 18.)—Arneth finds that during the period of hepatization in pneumonia, vocal fremitus is constantly absent, while bronchial breathing and typical bronchophony may be heard. In the first and third stages of the disease; on the other hand, the pectoral fremitus is ordinarily exaggerated.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

The Action of Eunatrol.—Girardi and Schifone (*Gazz. degli Ospedali*, June 27, 1905; *Ztbl. f. d. ges. Therap.*, May, 1906,) demonstrated in dogs that eunatrol (sodium oleate), given by mouth in doses of 3-5 gm. caused a fivefold increase in the quantity of bile. Subcutaneous injection of the salt produced the same effect, though to a smaller degree. Fresh portions of rabbit's liver immersed in physiological salt solution, to which a trace of sodium oleate had been added, secreted bile pigment which was chemically demonstrable, while control tests were negative.

Clinically, eunatrol reduces the severity and the duration of gallstone colics, and makes them of less frequent occurrence. It also reduces or completely dispels the various gastric, etc., disturbances which frequently occur during the intervals of attacks. Good results were also obtained in catarrhal jaundice. Four to eight pills daily is the usual efficient dose. The drug has also been found efficacious in constipation.

The Treatment of Diabetes Insipidus With Injections of Strychnine.—Ketly (*Therap. d. Gegenw.*, March, 1906) treated four cases of diabetes insipidus with hypodermic injections of strychnine nitrate, beginning with 5-10 gm. (one dose per day) and increasing 1-10 mg. daily until 0.1 gm. was given at a dose. For three subsequent days 0.003 gm. was given three times daily in pill form by mouth, and the dose was then discontinued.

In three cases the daily quantity of urine was reduced to normal and remained so. In the fourth case the treatment was useless.

CURE OF A STRICTURE OF THE OESOPHAGUS OF LONG STANDING BY MEANS OF THIOSINAMIN.—Pollack (*Therap. d. Gegenw.*, March, 1906) reports a strikingly successful application of thiosinamin in a case of stricture of the œsophagus. The stricture was caused by the accidental swallowing of a solution of sodium hydrate. The patient had been unable to swallow solid food for eight years, no sounds could be passed for the last two years, and liquids had not passed for several months; nourishment had been given through a gastric fistula. Injections of thiosinamin (2 gm. dissolved in glycerin 8 gm. and water 10 gm.) were made into the arm (one-half of a Pravaz syringe, every other day). After the third injection a small sound could be introduced, and liquids could be swallowed. At the end of six weeks the largest sound could be passed with some difficulty, and solid food was taken with ease. After 24 injections, treatment was discontinued, and no recurrence has taken place.

PANE'S ANTIPNEUMONIC SERUM.—Tartaro (*Buffalo Med. Jl.*, June, 1906) reports the results in 25 cases of pneumonia treated with Pane's antipneumonic serum. 1. No change in the physical signs takes place. 2. The gravity of the pneumonia is mitigated, but its course is not shortened. 3. A fall in temperature of from one to three degrees follows the injection of 10 cc. of serum. 4. The subjective symptoms of the disease are ameliorated even when the temperature is not reduced. 5. Cyanosis and albumin in the urine disappear. 6. Cardiac complications, which, with the two foregoing conditions, are due to the pneumococcus toxins, are relieved by the serum. The serum should be injected in doses of 10 cc. to 20 cc. and repeated at intervals of 12 hours. In severe infections much greater quantities may be used, as much as 100 cc. to 120 cc. per day.

THE EFFICIENCY OF MARMOREK'S SERUM.—Rover (*Beitr. z. Kl. d. Tub.*, Bd. V. H. 3, 1906) concludes from observations in 25 cases of various sorts of tuberculous infections that Marmorek's serum is of no apparent value in pulmonary tuberculosis; its effect cannot be differentiated from that of the fresh air and rest treatment, which was carried out in all cases. In bone tuberculosis and tuberculous adenitis, on the other hand, it proved to be of positive value, as could be seen from the disappearance of pain and fever, and the reduction in the size of infected glands. In infections of the bladder and kidneys, improvement was only temporary.

Systematic blood examinations showed a uniform increase in the number of neutrophile leucocytes, following serum injections and a concomitant though frequently temporary improvement in both the local and general condition.

THE ACTION OF QUININE UPON THE TERTIAN, QUARTAN AND AESTIVO-AUTUMNAL MALARIAL PLASMODIUM.—Craig (*Am. Med.*, April & May, 1906), after studying the effect of quinine on the various forms of malarial plasmodia in stained specimens, finds that quinine acts injuriously upon the plasmodium in all stages of its development with the

possible exception of the large full-grown plasmodium just prior to segmentation. To secure the best results, the drug should be given at regular intervals, in divided doses, so that it is always present in the blood, and stops the development of the plasmodia which have escaped it while free on the blood plasma. He found that doses of 0.5 gm. administered every three hours until 1.5 to 2.0 gms. were taken, effected a prompt and more rapid recovery than when a single large dose was given just before sporulation.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

THE SURGICAL THERAPY OF GASTRIC ULCER.—Eiselberg (*Mitt. aus den Gren., der Med. and Chir.,* 16 Band., 1 Heft.).—This subject, which has attracted so much attention among American surgeons recently is also beginning to be heard of in Europe. This report, from one of the largest clinics in Vienna, has some interesting points in it, but the number of cases upon which the author's theories have been tried are ridiculously small compared with the amount of material which is quoted from many of our American clinics.

The Mayos alone have done more than six hundred operations for ulcers of the stomach and duodenum, still, this author, with characteristic foreign near-sightedness, fails utterly to refer to their work, or to that of any other American surgeon.

Many of the questions which prominent German speaking surgeons are now debating over have long been settled and become obsolete in this country, but, strange to say, the above named gentlemen are very slow in finding that out.

The author divides the subject into open ulcers and scars which follow ulcers. The two chief dangers of an open ulcer are perforation and hemorrhage. He has operated six times for the first named affection with three recoveries. He expresses well the difficulty of finding a bleeding point within the stomach. Often the ulcer is not situated where it can be easily reached, and again the bleeding is hard to control after it is found. Often there is more than one ulcer, and frequently no sign of the lesion can be detected upon the exterior of the organ. Hence, the author does not consider it well to operate for hemorrhage as such in the acute stage, but it is quite another question when there are multiple small hemorrhages which are rapidly reducing the patient's strength. Here surgery finds its chief indication. He gives a reason why he does not highly value removal of the pylorus for ulcer. He saw one case where Billroth did this operation for ulcer and five years later the patient bled to death from another ulcer. However, it must be admitted that this is a most unusual occurrence. Pyloric spasm is best treated, our author says, by gastroenterostomy. He goes into no details concerning the technique of these operations.

Potassium Permanganate as a Remedy in Snake-Bite.—(Abs. *Therapeautic Gazette,* May, 1906.)—In our last issue we called attention to an article by Crun in the *Jour. Amer. Med. Ass'n.* on this same subject.

Capt. Rogers, of the Indian Medical Service, reports 12 cases of snake-bite treated with free crucial incisions of the bitten part and thorough flushing of the part with a hot solution of permanganate of potassium. There were 10 recoveries. Of the 12 cases, 2 were due to the russel viper, 7 to the cobra, and 3 to a snake not identified. He analyzes the results as to kind of snake, position of bite on body, number of fang marks, etc. The conclusions at which he arrives are that permanganate of potassium is to be regarded as one of the most valuable remedies in this condition, and advocates the employment of the lancet.

A very interesting instance is reported by Civil Surgeon Choudhuri of a dog bitten by a viper and treated with permanganate of potassium, the dog recovering. Two other dogs bitten by the same snake and receiving no treatment died within two hours after being bitten.

Post-operative Hernia.—Amberger (*Beit. zur. Klin. Chir.,* Band. 48, Heft. 3).—The author succeeded in following 180 laparotomies, done in the clinic of Prof. Rhen at Frankfort. He found that 12 per cent. of these incisions were followed by hernia, that is, it occurred twenty-three times. One hundred and five of the patients were strong, 35 medium, and 22 weak. The difference between these three classes, as regards the formation of hernia, was so slight that the author has justified a conclusion that the patient's muscular condition has very little to do with the matter. He found that most of his herniæ occurred in children whereas twice as many were males as females.

Most of his patients have been operated upon for appendicitis, hence it is not strange that the largest number of herniæ occurred in this class, but it is interesting to say that the highest per cent. was among these. Due consideration is given to the injury of nerves and muscles which predispose to this kind of trouble. As might be supposed, the accidents were least common where the upper abdominal wall was incised. The influence of a binder was so slight upon results obtained that little can be said in defense of the practice of wearing one. Drainage was responsible in so many of the cases that it can be said to have far more influence than any one factor.

The author's conclusions are that we must try in every way to prevent suppuration in the wound. That we must do as little draining as barely necessary and that secondary suture will be of value in preventing this accident.

Anatomy of the Inguinal Region.—Witherspoon (*Jour. Amer. Med. Assn.,* May, 1906).—This very interesting article is based upon the study of some fifty dissections. In comparison with the descriptions of this region by Toldt, Spalteholz, Morris, Gray, Deaver and Zukerkandel, the author finds the results of his investigations to be somewhat at variance. After a very careful and accurate consideration of the structures composing this region, the author summarizes, emphasizing the following points:

The internal abdominal opening is located in the extraperitoneal fatty tissue.

Hesselbach's ligament is formed by fibrous bundles which connect the outer end of the semilunar fold of Douglas with the inner margin of the internal abdominal opening. During intra-abdominal pressure, Hesselbach's ligament, due to its resistance, helps to increase the size of the internal abdominal opening.

In the inguinal area the internal surface of the abdominal wall is divided into two planes by Hesselbach's ligament. When the muscles of the plane lateral to this ligament are weakened by disease or advanced age, the intra-abdominal tension greatly exaggerates the difference between it and the plane median to the ligament. Since the internal abdominal opening is at the junction of these two planes, the greater the difference between them the greater the possibility of the escape of a viscus through the opening.

The transversalis fascia does not join Poupart's ligament at any point.

The fibrous bundles passing out of the pelvis into the conjoined tendon give the abdominal wall its chief strength internal to the inguinal canal. The abdominal wall just internal to the external abdominal ring is strengthened by the aponeurosis of the transversalis muscle.

The base of the so-called conjoined tendon is the constricting agent in femoral hernia.

The so-called conjoined tendon was in no instance formed by a union of fibres from the internal oblique and the transversalis muscles in the subjects dissected. Judging from the usual anatomic arrangement this union seems quite impossible.

The external abdominal opening is situated between the dividing fibres of the aponeurosis of the external oblique muscle. The external abdominal ring is situated in the peri-aponeurosis which covers the external abdominal opening.

The article is supplemented with several drawings which enables one more clearly to understand the fine points of the discussion.

Surgical Treatment of Goitre, Based Upon Two Hundred Operations.—C. H. Mayo (*Medical Herald*, May, 1906).—Mayo thinks the region of the neck would offer as many inducements for the specialist as any other region of the body, and the thyroid gland presents, perhaps, more interesting and varied conditions than any other diseases of this region. A careful consideration of the development and anatomy is given by the author. The para-thyroids are associated with the thyroid in function but less understood than the thyroid. The glands are seldom seen in surgical work unless themselves diseased. In a review of the foreign literature by Bartlett it is stated that tetany could not be produced by complete removal of the thyroid glands as long as the para-thyroids were left behind. If, however, the para-thyroids were removed tetany was caused without cachexia. The frequency with which myxedema follows total removal and the known effects of over-secretion, together with the influence on the physical and mental development in youth, all favor the respect which physiologists and surgeons hold for it.

Malignant disease of the thyroid also occurs, accompanied usually by voice changes. Bloodgood states that when a differential diagnosis is possible it is probably too advanced to cure.

Operation upon exophthalmic goitre is frequently delayed by the patient till he is rendered so nearly moribund that the shock of operation induces a mortality prohibitively high. The injection, puncture and drainage methods of treating goitre are nearly as dangerous as radical operation and must be reserved for special indications.

In Graves' disease the operations upon the sympathetic ganglion are not as satisfactory as operations upon the gland itself. Serum treatment, the author thinks, has not been sufficiently worked out for us to experiment with the various samples upon the market.

In severe cases of Graves' disease it may be necessary to prepare the patient for some time. The heart seems to be the most important consideration in these cases. As a rule effort should be made to reduce the pulse to 120. Severe cases with a rapid pulse fluctuation with exertion or nervousness may be improved if put on extract of belladonna, grain 1-6 three to four times daily. This inhibits the activity of the gland. If there is no improvement in six weeks x-ray is added to the limit of tolerance. Improvement after operation in Basedow's disease is early. Nervousness and tachycardia are under control in two or three days. If there is not a large tumor we content ourselves with the removal of about one-half the gland with the isthmus. We should plan to leave about as much as would constitute a normal thyroid in quantity. The last fifty years has seen the mortality of these surgical operations reduced from 40 per cent. to 1 or 2 per cent.

Ether anesthesia preceded twenty minutes by a hypodermic of 1-6 grain morphia and 11-20 of atropine was used in the last 150 cases operated on. No deaths could be attributed to the anesthetic.

In a total of over 200 operations the Mayos have had but one death if exophthalmic goitres and malignancy be excluded.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

REMARKS ON THE INFECTIONS OF JOINTS.—Lovett (*Boston Med. & Surg. Jour.*, May 24, 1906.)—In no department of joint disease has so great a disturbance occurred in the last few years as in the views regarding infections and their relations to joint affections. In general acute joint infections fall under four groups. (a) Acute osteomyelitis of the articular end of one of the long bones, involving the joint secondarily; (b) acute suppurative synovitis, or joint abscess; (c) acute plastic synovitis leading to joint obliteration; (d) acute serous synovitis. Tuberculous and chronic joint diseases are not considered in this classification. Acute osteomyelitis needs only to be mentioned. It is an acute suppurative inflammation of bone due to infection of the bone marrow by pyogenic organisms. The treatment of such cases consists in the earliest possible free drainage of the joint, with careful search for the infected area of bone, which should be opened. Acute suppurative synovitis, or joint ab-

scess, occurs as the result of various infective organisms and appears in infectious diseases of a wide range, such as cerebro-spinal meningitis, diphtheria, dysentery, erysipelas, epidemic parotitis, glanders, gonorrhœa, epidemic influenza, measles, pneumonia, pertussis, puerperal fever, pyemia, septicemia, scarlet fever, smallpox, tonsilitis, typhus fever, typhoid fever, after the use of sounds and catheters, and possibly in malaria. The treatment consists of free drainage of the joint as soon as evidence of suppuration can be established. Plastic, or ankylosing synovitis, in which an acute or severe joint inflammation is followed by partial or complete obliteration of the joint, without suppuration, is most familiar as an accompaniment of gonorrhea. Little can be said, however, of its etiology and no satisfactory treatment has been formulated. Acute serous synovitis occurs in connection with general infectious disease. It is often classed under the name of articular rheumatism. It does not differ clinically or pathologically from what is generally regarded as acute articular rheumatism. It may be produced by the injection of cultures of pyogenic organisms experimentally. It cannot as yet, however, be regarded as a specific infectious disease. Evidence rather tends to identify it as "an attenuated pyemia." Acute infections of the joints of undoubted bacterial origin occur in two grades of severity in connection with many infections. In many cases the source of infection cannot be established, and in such cases it is important to remember the function of the tonsils and the presence of pyogenic bacteria in the mouth as a ready source of infection. That acute articular rheumatism is an infection seems probable from bacterial and especially from clinical evidence; but this has not as yet been definitely proven.

Treatment of Paralytic Club-Foot By Arthrodesis.—Townsend (*Amer. Jour. of Orth. Surg.*, April, 1906).—The value of any operative procedure for the relief of disease or deformity can only be determined by careful and critical examinations of the results both immediate and remote. Arthrodesis of the ankle-joint for flail-foot was first performed by Albert, of Vienna, in 1879. All text-books of orthopedic surgery refer to the operation but say very little in regard to the results, or after-treatment. During the past two years many cases have been operated upon by the method of supplementing the tendon-transplantation by an arthrodesis. At the Hospital for Ruptured and Crippled in New York, operative work on paralytic club-foot may be divided into three stages: 1894-1899, arthrodesis; 1899-1901, tendon-transplantation; 1901-1905, arthrodesis, tendon-transplantation, or arthrodesis and tendon-transplantation combined. These cases were operated upon by the regular hospital surgeons and the results represent a fair average of what may be accomplished by different men. Arthrodesis is indicated in all cases where there is no power in the anterior or posterior leg muscles, or where power is so slight that a tendon-transference would be of no use. The failures have been much more numerous in younger than in older children. The reasons for this are anatomical. Ossification begins in the lower end of the fibula and tibia in the second year. The lower epiphysis of the fibula joins the shaft about the twenty-first year and that of the tibia about the eighteenth. Operations in very early life

not only have the disadvantage that we are operating largely on cartilage and a true bony ankylosis is most difficult, but we destroy the growth and development of the limb if we remove much tissue. The best results have been achieved in children over six.

The impression is that fibrous ankylosis is more likely to break down than to become bony. If after operation there is even very slight motion, apparatus should be continued for some time. Failures should be charged in many instances not to the operation but to the operator. The plaster-cast applied after the operation should be kept on at least three months, unless some reason exists for removing it sooner; and it should be properly applied, that is, firmly, evenly and closely. Sepsis is exceedingly rare under proper conditions and if life is not endangered will not adversely affect the result.

The relapses after arthrodesis are probably less frequent than after tendon-transplantation. The operation is an operation to be strongly recommended in suitable cases. It should be performed in cases where little or no power exists and at times should be aided by transference of tendons. Operations should not be performed on very young children and apparatus must be worn for a year or longer after operation.

Treatment of Club-Foot.—Schultze (*Zeit. fur Orth. Chir.*, Band XIV., Heft. 3-4).—The author presents modifications and improvements to the osteoclast described by him during the last year. This osteoclast as at present outlined is constructed as follows: A table, to the end of which is hinged a board which may be forcibly folded upon the club-foot by means of a mechanism. In addition to this, there is an apparatus for exerting traction upon the leg, so as to hold the sole of the foot against the hinged board of the osteoclast. The vital point in all operations for club-foot is to persist in the over-correction until the foot assumes a pronated dorsal flexed position.

Cubitus Varus, Showing Deformity of Lateral Curvature of the Spine Corrected by Osteotomy.—Peckham (*Amer. Jour. of Orth. Surg.*, April, 1906).—The author reports the case as follows: Boy nine years old; severe fracture about the elbow-joint four years ago. Was put up in acute flexion and union resulted with deformity of cubitus varus. While the deformity existed the boy was unable to stand straight, his spine assuming the position of lateral curvature. Osteotomy was done just above the condyles of the humerus. The carrying angle of the elbow was restored and the arm put in plaster of Paris. As a result of the correction of this deformity the boy now stands perfectly straight.

GENITO-URINARY SURGERY.

IN CHARGE OF
H. McC. Johnson, M. D.

The Conditions in which the Bottini Operation is Indicated in the Treatment of Prostatic Hypertrophy.—Willy Meyer (*Am.*

Jour. Urology, June, 1906.) — The Bottini operation is now generally recognized as having its strict indication in the treatment of prostatic hypertrophy. The encouraging results often obtained in cases where operation with the knife would, in all probability, have caused the death of the patient, serves to frequently make it the operation of choice. In many cases it is not only preferable to prostatectomy, but is the only alternative remaining to the patient. It is natural that we should, whenever feasible, allow our patients to profit by the radical removal of the gland. Still there are cases in which other chronic diseases, such as diabetes, advanced chronic heart trouble, or general debility, make it appear imprudent to take such a risk, or where the patient or his family is absolutely opposed to the use of the knife. It is here that the Bottini operation steps in.

In considering the comparative mortality, it must be remembered that many cases in which Bottini's operation is done are those in which prostatectomy is considered either inadvisable or impossible.

The author cites a case in which a suprapubic prostatectomy was done after the Bottini had failed to relieve. The grooves cut by the galvanocaustic knife were found to be entirely adequate, and each one was as large as the internal meatus, though in this case the valve-like action of the median lobe interfered with the urinary outflow. From the experience in this case and others, he insists upon prostatectomy in the presence of a median lobe if the patient's condition does not contraindicate it.

Treatment of Chronic Blennorrhœa by Instillations of Silver Nitrate, Followed by the Introduction of a Zinc Sound.—Balzer and Tansard (*Ann. des Mal. des Org. urin.,* May 1, 1906.)—While in the treatment of chronic blennorrhœa, nitrate of silver as a topical application has been of signal service for a long time, yet following the lead of Carradi in the treatment of other conditions, such as syphilitic condylomata, the authors have taken advantage of the reaction of metallic zinc in the presence of nitrate of silver in the treatment of chronic affections of the urethra. When metallic zinc is placed in the presence of nitrate of silver, there is immediately produced a double decomposition of the silver salt. Nitrate of zinc is formed, and the silver is reduced to a metallic state under the form of a black body, which is deposited wherever the zinc has been in contact with the nitrate of silver. When a surface is penciled with the nitrate of silver, followed by the application of metallic zinc, there occurs a cauterization which has been used by various authors for different chronic inflammations.

In order to utilize this reaction in the urethra, an instillation of from ten to twenty drops of a solution of the nitrate of silver of from one to two per cent. is introduced into the anterior or posterior urethra, according to the place to be treated. The two per cent. solution should seldom be used, for the caustic action of the nitrate of zinc may become too strong. Immediately after the instillation of the silver, the zinc bougie is introduced into the urethra and kept there from one to two minutes, in order to allow time for the reaction to take place. This may be judged by two signs. First, by the increased pain given the patient, and, secondly, by the appearance at the meatus of the vaseline (with which

the sound has been lubricated) blackened by the reduced silver. If the silver solution is too concentrated, the nitrate of zinc formed may attack the mucous membrane too energetically, so that in general a one per cent. silver solution should be employed, and only exceptionally a two per cent. Examination of the urethra with the endoscope shortly afterwards, and the bulbous bougie a month and a half later, showed that no strictured condition resulted. The procedure is indicated in almost all cases of chronic blennorrhœa, anterior and posterior, with or without gonococci. It is advised in chronic urethro-cystitis and prostatitis, and suggested in prostatorrhœa and spermatorrhœa.

Renal Decapsulation and Nephrotomy in the Treatment of Grave Forms of Eclampsia. — Pousson and Chambrelent (*Ann. des Mal. des Org. Urin.*, April 15, 1906.) — The pathogenetic theory of eclampsia generally accepted today is that of a blood intoxication with a poison, the origin and nature of which is still undetermined. There is added to this toxæmia (and which aggravates its consequences) lesions of the liver and kidneys, that is to say, the two most powerful emunctories of the organism. Acting on this theory, the treatment consists in the employment of proper means to obtain purgation of the blood. These means consist of milk diet, water in quantities, enteroclyses, hypodermoclyses, etc. This combats the toxæmia, but neglects the lesions of the liver and kidneys, or attacks them only indirectly. Chloride of soda is considered harmful today in uræmic states, and the water even, which elevates the blood tension in the vessels of the kidney as well as in those of other organs, tends rather to aggravate the lesions by reason of the increased work that it places upon all the anatomical elements, and especially the epithelium.

In order to remedy these inconveniences of treatment by lavage of the blood, to render more effective the blood emissions, and to put an end to the nephritic lesions, surgical intervention has been thought of, not to substitute the medical treatment, but to be recommended as a new resource added to those we already possess. In grave intoxications having resisted medical means, particularly in those cases which are accompanied by oliguria and diminution of urea and other extractive materials, surgical intervention is justifiable, and becomes advisable when the histological examination of the urinary deposits shows elements characteristic of acute nephritis.

Edebohls' two cases of eclampsia, and one of the author's, terminating in cure, show the good effects of surgical intervention in this grave affection. But while the American surgeon in his cases did a double decapsulation of the kidneys, the authors added a right nephrotomy to this bilateral operation in their case. This incision of the kidney is of great advantage and adds much to the operation of decapsulation.

Reginald Harrison was the first to call attention to the relief of tension in cases of acute nephritis after nephrotomy, comparing this to that found to follow the relief of tension after incising the tunica of an inflamed testicle, or in cases of glaucoma. The authors suggest that, besides the relief of tension, the abundant flow of blood that is obtained by the incision itself relieves congestion of the kidney, modifies diapede-

sis, favors the outflow of the exudates and detached epithelial encumbered in the canaliculi intersected by the incision. This action may be kept up for days if a drain is put in, as this permits the altered liquids secreted by the kidney to flow outward, and renders possible antiseptic lavages.

Operation of Freyer Followed by Autopsy.—Loumeau (*Ann. des Mal. des Orig. urin.*, April 15, 1906.)—The author reports the case of an old prostatic who died three days after he had performed a prostatectomy by the method of Freyer, and upon whom he had the privilege of holding an autopsy. There was a cystic adeno-myoma of the prostate with a predominance of the muscular element. This muscular predominance and the manner of distribution of this tissue in each prostatic lobe gave a certain consistency which rendered it impossible to enucleate the hypertrophied gland either in separate lobes or in small nodules. All the tissues were extremely united, thus making it necessary to extirpate the gland in one piece, the urethro-prostatic mass coming away as a whole, leaving, however, small islands of the gland behind. In this procedure the internal sphincter and the prostatic urethra were removed as far forward as the veru montanum, the ejaculatory ducts being torn across. There was no sign of any infiltration of urine from the prostatic wound. It well shows the perfect drainage of the prostatic cavity through the method of Freyer, and that the perineal drainage of Fuller is not as indispensable as one would *a priori* think it.

Taking up the discussion between Fuller and Freyer as to the claims of priority, the author cedes the American the credit of having originated the operation and accredits Freyer with having modified it in an important manner, that is, in having instituted the special vesico-hypogastric drainage, and thinks the procedure should be designated *the operation of Fuller-Freyer*. It seems that after supra-pubic prostatectomy the prostatic cavity is re-formed in two different manners according to whether it is a subtotal prostatectomy with preservation of the prostatic urethra or a total prostatectomy comprising the gland and prostatic canal. In the first case, the walls of the prostatic urethra spread out until they become in relation with the wall of the prostatic cavity, forming somewhat of a funnel, the bowl of which is at the vesical neck and the narrow part continuous with the membranous sphincter of the urethra.

In the second case, the bladder and the prostatic cavity form together a cavity in the form of a reversed gourd, the large part corresponding to the bladder and the interior or smaller part to the prostatic region. In both cases the prostatic cavity is made a part of the vesical reservoir. In the latter case, the physiological neck is transported to the membranous sphincter, which is indeed the true sphincter of the bladder, and the integrity of which is indispensable to continence after prostatectomy. It appears that the prostatic region is recovered by mucous membrane which is continuous with that of the bladder. The author has had two deaths in eleven operations after this method.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

OVARIAN PREGNANCY.—J. K. Kelly and A. L. McIlroy (*Jour. of Obst. and Gyn. Brit. Emp.*, June, 1906. SPECIAL NUMBER ON EXTRA-UTERINE PREGNANCY.)—The fact that ovarian pregnancy occurs is today positively established. It has been suggested that this form of ectopic pregnancy probably is more common than is generally believed, and this new case certainly advances a good argument in favor of such a suggestion.

The patient, a woman of 33 years, who has had five children, was operated upon, the diagnosis being extra-uterine pregnancy. In connection with the left ovary a blood cyst was found of about the size of a plum. This ovary and the left tube were removed. Quite accidentally this specimen was examined several months later. The detection of chorionic villi led to the careful microscopic examination of the whole ovary. The diagnosis of ovarian pregnancy could be positively made. The whole ovisac was completely composed of ovarian tissue. The presence of lutein cells in the tissue immediataely surrounding the fetal epiblastic structures proved that the fertilization of the ovum had occurred within a Graafian follicle. That the pregnancy originated within the ovary thus is apparent, the tube being normal and free from any adhesions to the ovary.

The occurrence of blood cysts in the ovary is common and these cysts hardly ever are examined carefully for products of pregnancy. Even in this case, where a diagnosis of ectopic pregnancy had been made and operation had been performed on that diagnosis, the specimen at first was put aside as a sample of mistaken diagnosis. How often such blood cysts in reality are ovarian pregnancies could be easily ascertained by a systematic examination of all such specimens.

A CLINICAL EXPERIENCE OF ECTOPIC PREGNANCY AND ALLIED CONDITIONS.—Haultain (*Ibidem.*)—In detailing his personal experience with extra-uterine pregnancy, the writer points to the difficulty of diagnosis on account of the irregularity of the symptoms, and emphasizes the frequency with which it is simulated by other conditions and the ease with which it is mistaken for an ordinary abortion. The necessity of a thorough pelvic examination in every case of abortion becomes obvious. Of special interest is the writer's strict belief in "the absolute necessity of operation as soon as even a probable diagnosis of ectopic pregnancy has been made."

EXTRA-UTERINE GESTATION ASSOCIATED WITH UTERINE FIBROMYOMATA.—Taylor (*Ibidem.*)—Although our knowledge of the etiology of ectopic pregnancy is yet indefinite and uncertain, still it has been somewhat generally held that conditions which mechanically interfere with the downward passage of the ovum from the Graafian follicle to the uterine cavity play a not unimportant role in the causation of this con-

dition. Thus some observers believe that myomas, or other tumors, may so compress the tubal lumen as to interfere with the migration of the ovum through the tube. The occasional association of myoma with tubal pregnancy offers another point of interest. These conditions may simulate each other, and the differential diagnosis, or the diagnosis of the co-existence of both anomalies, may become a matter of considerable difficulty. Taylor describes an interesting case of this sort and appends the histories of similar cases recorded in literature.

The Diagnosis of Early Extra-Uterine Pregnancy. — Milligan (*Ibidem.*) — The advance of our knowledge of the symptomatology of early ectopic pregnancy is clearly proved by the increasing frequency of the correct diagnosis: Unruptured Tubal Gestation. In discussing in a very thorough manner the diagnosis of this condition, the writer divides the subject thus: I. What the patient tells: (1) in her own words; (2) in answer to minute inquiries (a) with regard to pain, (b) with regard to the bleeding from the vagina. Important points in this connection are: The color of the discharge, its persistence and the presence of membranes. II. What may be expected to be found on examination. III. The most likely things that may be confused with an extra-uterine pregnancy, viz: (1) intra-uterine pregnancy, (2) retroversion of the gravid uterus, (3) inflammatory and other acute abdominal conditions (pyosalpinx, cellulitis, appendicitis, rupture of any abdominal viscus and intestinal obstruction), (4) tumors (ovarian, fibromyoma, hematocele, extra-peritoneal hematocele or hematoma, and hemato-salpinx).

Abdominal Pregnancy.—Marsh (*Ibidem.*)—This is a rather unique case. The pregnancy progressed apparently to full term. Twenty-seven months later the writer removed the fetus piecemeal from the rectum, into which it had broken. All the parts of a fully-developed child were found, except one arm

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Recent Work on Tubal Gestation (1902-1906.)—Andrews (*Ibidem.*)—The writer presents an interesting and evidently complete critical review of fifty of the newer contributions to the following three topics: Anatomy of the Pregnant Tube; Causes of Tubal Abortion and Rupture; Etiology of Tubal Pregnancy.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

Examination of the Urine in Infants.—Chapin (*Archives of Pediatrics,* May, 1906) reports the results of the routine examination of the urine in a series of cases in infancy. In 86 cases of disturbance of the gastro-intestinal tract, of various kinds and degrees of severity, albumin was present in 75 cases. In 37 of these there were casts. In this

series there were 16 deaths, 14 of these cases had albumin, 10 albumin and casts. Indican was present in 22 of 32 cases, in which it was looked for.

In 57 cases of pulmonary diseases of various kinds, albumin was prescut in 49. Thirty-two of these cases also had casts. In this series there were 17 deaths, 15 having albumin, 10 albumin and casts.

In 45 cases of general illness there was albuminuria in 31.

Of 11 cases of cerebro-spinal meningitis, 9 had albumin and casts.

Chapin believes that albuminuria is very frequent in infancy, that in many cases albumin (and even casts) merely point to slight congestion with irritation of the renal tubules. The urine of infants may contain both albumin and casts, without indicating any grave renal lesion, and without offering a grave outlook. In the discussion which followed the reading of this paper, the general consensus of opinion agreed with these views.

Salt-free Diet in Scarlet Fever.—Pater (*Rev. Mens. des de l'Enf.*, April, 1906) submits a preliminary report of a series of cases of scarlet fever, in which instead of the usual strict milk diet, a varied but absolutely salt-free diet was given. The value of the salt-free diet has been abundantly proved in the treatment of nephritis and certain forms of dropsy, and such a diet would appear to have a distinct prophylactic value against scarlatinal nephritis.

The diet was instituted as soon as the initial fever had subsided, and consisted of bread, without salt, rice, puree of potatoes, eggs (all without salt), with butter, light desserts and milk. Careful studies of the weight curve, and of the urine were made in all cases. The author concludes that the salt-free regimen is without danger in scarlet, that it is as good a prophylactic against nephritis as the absolute milk diet, and much more agreeable to the patient. In all the cases there was an initial febrile albuminuria, which disappeared at once, when the diet was given. This regimen by strengthening the patient shortens the period of convalescence, and puts the patient in better condition to withstand secondary infections or complications.

Therapeutic Use of Tuberculin in Childhood.—Ganghofner (*Jahrbuch f. Kinderhilk.*, May, 1906) reports twelve cases of tuberculosis in childhood treated with tuberculin. The cases were under observation for long periods of time, and were carefully studied.

Ganghofner uses the old tuberculin, and begins with very small doses, having the rate of increase very small also.

In a boy of six, with unilateral pulmonary lesion there was very marked improvement. Twenty-nine injections were given, varying in amount from 1-10 to 5 mg.

In a girl of twelve with pulmonary lesion and laryngeal tuberculosis, 13 injections were given, varying in amount from 1-10 to 8-10 mg. The laryngeal lesion showed very decided improvement, but the pulmonary lesion did not. Of 7 cases of scrofula all advanced, there was marked improvement in three. Three of the other four reacted very intensely to even very small doses (1-100 mg.). One of these children died, and

at the autopsy, the tubercular lesions were found to be very much more advanced than they had been supposed to be intra vitam.

Two cases of tubercular peritonitis showed very distinct improvement. Ganghofner believes tuberculin in small doses to be without danger, and he thinks that the treatment is deserving of an extended trial.

Bacteriology of Cerebro-Spinal Meningitis.—Robinson (*Amer. Jour. Med. Sci.*, Apr., 1906) studies 15 cases carefully, the organism being isolated from the spinal fluid, circulating blood, pus from the conjunctiva, and from the central nervous system at autopsy, agreeing in all respects with the diplococcus intracellularis meningitidis of Weichselbaum. It was isolated in pure culture from the spinal fluid of the 14 cases in which puncture was performed, and is to be considered the causal agent in all cases. The organism was obtained from the circulating blood in two of four investigated cases, but is probably only an occasional invader of the circulating blood. It may be present for many days in the blood, and does not occur only as an agonal invader of the blood. The diplococcus may occur in the pus of purulent conjunctivitis, a complication not infrequently seen in meningitis. It was isolated from one of the two cases in this series, which showed this complication.

Secondary lung infections with pyogenic organisms are frequent, and a terminal broncho-pneumonia was found in 5 of the 6 cases which came to autopsy, all of which showed the presence of pyogenic cocci.

NEUROLOGY.

IN CHARGE OF

Sidney I. Schwab, M. D.

The Mental Disturbances of Alcoholic Neuritis.—Coriat (*American Jl. of Insanity*, No. 4, 1906.)—This paper is an attempt to consider the mental disturbances found in alcoholic neuritis other than those described under the term Korsakow's disease. Several cases are described by the author, and, after a review of the literature on the subject, he adds the following as a resume of his findings: The neuritic disturbances may take on several distinct varieties, either as a central or as a peripheral eye-muscle palsy. They may exist in the form of psychosis described by Korsakow, but which may also occur without any sign of a peripheral neuritis, and may be caused by other factors besides alcohol. A delirious state strongly resembling delirium tremens, but of a very acute onset. A very acute delirium of Karsakow's type with isolated neuritic symptoms and progressing rapidly towards recovery. A true delirium tremens which may shade into a fabricating psychosis. A group of cases with protracted course, showing a marked depressive effect with suicidal tendencies, strong religious ideas, episodes of fear and anxiety, and a marked hallucinosis. Pure acute hallucinosis in which the neuritic pains may form the basis of various delusional interpretations analagous to the parasthesias of the alcoholic paranoid states without neuritic signs.

Depressive delerious states of a very rapid course, with marked physical symptoms of polyneuritis. A fabricating delirium of an acute type. A group of cases resembling at first an alcoholic deterioration, with marked recent memory defect, running a rather slow course, but with almost complete recovery parallel with the improvement in the physical signs.

Toxic Polyneuritis in a Consumptive.—Salomonson (*Neurologisches Centralbl.*, No. 10, 1906.)—This is the report of a case of polyneuritis in the course of a chronic tuberculosis of the lungs. The neuritis in this case might have been explained on the ground of a tubercular infection, as there have been several such instances reported in the literature, but the author, in this case, inclines to the belief that the neuritis was due to the toxic effects of the medicine taken, which was found to be phosphoric creasote. This case might serve as a warning against the use of this dangerous combination, as the toxic effects are coming to be well known.

The Abdominal Reflex in Enteric Fever.—Rolleston (*Brain*, Part 1, 1906.)—The value of the abdominal reflex was first pointed out by Rosenbach in 1876. This reflex has not attracted as much attention as it really deserves. The present paper is based upon observations made on sixty patients, all of whom were certified on admission to be suffering from typhoid fever. During the acute stages the observations were made daily. The following conclusions are noted as the result of the work: (1) The abdominal reflex is affected in a very large number of cases of enteric fever, the percentage of cases in which it is entirely lost exceeding those in which its normal activity is diminished only. (2) From its absence under the age of fifty being confined to certain nervous diseases and acute abdominal conditions, notably appendicitis and enteric fever, the absence of the abdominal reflex in a given case of continued pyrexia in a patient below fifty is of considerable diagnostic value. (3) The comparative nature of the affection of the abdominal reflex in enteric fever is a striking contrast to the more chronic affection of the knee and ankle jerks in diseases associated with peripheral neuritis, i. e., diphtheria. (4) Return of a lost reflex and a resumption of its normal activity are a valuable indication of commencing convalescence.

These conclusions, the more important of those noted, serve to show that the abdominal reflex is worthy of more earnest study.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

The papers abstracted below were presented to the Ophthalmic Section American Medical Association, June 5-8, 1906.

A More Uniform Standard for the Illumination of Visual Test-Types.—C. H. Williams, M. D., Boston.—"If the light reflected from

the test-type card is too bright the retina soon becomes fatigued, there is more irradiation and the results obtained are less reliable than when a weaker illumination is used; on the other hand, if the light is too weak, we do not get a proper measure of the acuteness of vision under the conditions of ordinary use. We need some standard which will come between these two extremes, which will be constant, so that the acuteness of vision of any individual today can be properly compared with his record of any previous time and which will allow the reported records of one examiner to be compared with those of another."

In order to secure an unvarying illumination to meet the conditions set forth in the preceding paragraph Williams has had constructed a test card cabinet as follows: On either side of a rectangular opening, three feet wide by four feet high, is arranged a vertical column of small incandescent lamps of 5 candle power each, eight on each side, made to burn four in series on a current of 110 volts. The lamps are shielded from the patient's eye by a blackened tin screen. The test-types printed on yellowish paper are hung one foot behind the plane of the lamps.

In order to note the point where light reflected from a card becomes so much reduced in comparison to that reflected from the surface of the letters that the letters can no longer be read, Williams has devised a special form of photometer. This "simplex" photometer consists of two developed glass negatives cut in strips about six inches long by three-quarters of an inch wide, placed face to face and mounted in a metal case. The film on each negative increases in density in a geometrical ratio from the clear end toward the dense end. To measure the brightness of a light, the photometer is held in front of the eye so that the light to be measured is seen through the clear end. The glass is then moved so as to bring the denser portions of the film in line with the light until a point is found where the light is just extinguished by the absorption of the film. The amount of light cut off by the film at this point measures the intensity of the light tested, and can be read off on a scale attached to the glass photometric negative. Another instrument, the "comparison" photometer, was devised for the purpose of comparing different portions of the film with a series of standard shade glasses, thus permitting accurate marking of each individual photographic strip.

The Diplobacillus of Morax-Axenfeld.—Brown Pusey, Chicago.—The recognition of this organism which is capable of giving rise to varying clinical conditions, from the most trivial conjunctivitis to the most serious ulcer of the cornea, is of very great importance, the more so as we have in the salts of zinc a specific remedy for diplobacilliary infections.

Pusey's experience leads him to believe that this form of infection is widespread, geographically in the United States. It seems probable that, as Zur Nedden has recently suggested, the sensitiveness of the cornea for this infective agent is not everywhere the same; that, in certain districts, as the result of long existence and wide distribution, its virulence has been greatly attenuated. In this country the organism certainly finds much virgin soil and hence may be expected to give rise to the more serious forms of infection.

The disease most typical of infection by this germ is a chronic blepharo-

conjunctivitis. The edges of the lids are red, particularly at the outer angles, the skin below the margins being macerated by the overflowing of the tears. The edges of the lids are the seat of a scaly deposit. The palpebral conjunctiva is not much swollen and only slightly hyperemic. The discharge is slight. Complaint is made of burning, smarting and itching of the lids.

In contrast with these typical forms Pusey records a violent case of acute conjunctivitis simulating clinically gonococcal infection, and a case of extensive corneal ulcer with iritis and hypopyon (not to be distinguished clinically from serpent ulcer due to the pneumococcus) in both of which diplobacilli were the causative factors. Both responded promptly to treatment with zinc solutions.

Pusey suggests that the organism be looked for before any cutting operations are done on the cornea and that every precaution (such as wearing goggles, confinement to the house, etc.) be taken by patients with diplobacillary conjunctivitis lest an accidental abrasion of the cornea give rise to serious infection.

As far as known the organism is pathogenic for the human eye only. It varies in size, averaging one micron wide and two microns long. It grows well on Loeffler's blood serum. Taken from this medium the bacilli show great variations in shape and size. They occur in pairs, the ends slightly rounded; also in short chains. They stain with all ordinary dyes and are negative to Gram.

Secretion is scanty, as a rule, but usually a deposit containing enormous numbers of bacilli may be found on the caruncle. Growth occurs only at blood temperature and on culture media containing human body fluids. On Loeffler's blood serum in 16 to 24 hours the bacilli form holes which grow larger and may run into one another. If the growth is allowed to continue the culture media may be almost completely liquified. This organism must be differentiated from the bacillus of Petit, which is distinguished by growing abundantly on all usual culture media and in liquifying gelatin.

The Staining and Examination of the Bacteria of the Eye by Simple Practical Methods.—E. S. Thomson, New York City.

Preparation of Films.—A small amount of pus from the conjunctival cul-de-sac is picked up on a platinum wire loop and spread thinly (without rubbing) on the slide.

Loeffler's methylene blue is the most generally useful stain. The solution is poured over the slide and rocked back and forth until the smear is colored a fairly deep blue. The slide is washed, dried and examined with an oil emersion lens. Carbol fuchsin in five per cent solution may be used in the same way. For counter-staining Wright's modification of Jenner's blood stain (eosinate of methylene blue) or Goldhorn's polychrome methylene blue, is recommended.

Gonococcus.—In the early stages of gonorrheal conjunctivitis the clusters of diplococci are perfectly characteristic. They stain well with Loefflers' methylene blue or with either of the counter-stains. If the clinical appearances are not characteristic and the smears show many forms lying outside the cells, decolorization by Gram's method is

resorted to. If the diplococci decolorize we have the gonococcus, the diplococcus of meningytis are rarely the micrococcus catarrhalis. The meningococcus is rare in the conjunctiva and causes a much less severe inflammation. Many diplococci will be found lying outside the cells and numerous varying forms will be present. If doubt still remains, cultures alone will decide the diagnosis. The micrococcus catarrhalis may at times be confused with the meningococcus.

Koch-Weeks Bacillus.—The detection of this organism in smears is fairly easy. They appear as short fine rods (0.8x10, micromillemeters) lying between and inside the pus cells, and frequently lying end to end in the shape of the letter V. They stain with difficulty, best with Ziehl's carbol fuchsin (one part to water nine parts), or with Loeffler's methylene blue applied with gentle heat. This organism may be confounded with (1) the influenza bacillus of Pfeiffer; (2) the influenza bacillus of conjuctivitis of Müller; (3) the pseudo-influenza bacillus of Zur Nedden. All of these forms require a hemoglobin medium which is not necessary for the culture of Koch-Weeks bacilli.

Morax-Axenfeld Diplobacillus.—Large bacilli (2x1 micromillemeters), which stain well with aniline dyes and are decolorized by Gram. Marked cultural differences serve to differentiate it from the bacillus of Petit.

Klebs-Loeffler Bacillus.—As there are no differential stains of reliability, cultures are invariably necessary.

Xerosis Bacillus very closely resembles bacillus of diphtheria, both morphologically and culturally. The question of differential diagnosis is difficult.

Pneumococcus of Fraenkel and Weichselbaum.—When typical it has the shape of two cartridges placed end to end and surrounded by a pale capsule; but as its "chief characteristic is variability" cultures are often necessary. It is best stained with weak carbol fuchsin, gently heating the slide during the staining.

Tubercle Bacillus.—A small amount of suspected conjunctival tissue is excised, "shredded" in salt solution, and then spread on slides. Scrapings from a corneal ulcer are treated in the same way. Stain with carbol fuchsin and methylene blue. Tissue preparations are stained, preferably with toluidin blue, decolorizing with alcohol. Not infrequently the germ cannot be discovered even in cases of undoubted infection.

LARYNGOLOGY AND OTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

THE ANTITOXIN TREATMENT OF HAY FEVER.—Somers (*Laryngoscope*, May, 1906). After discussing the different types of hay fever and his experience with the Dunbar antitoxin during the last three years, the author draws the following conclusions:

1. The antitoxin produces prompt and positive amelioration of the symptoms of hay fever in a large majority of cases.

2. In a smaller number, this is accompanied with complete disappearance for that particular season.
3. Where slight or no action is seen, it is due to improper administration; while in a very small number some idiosyncracy is undoubtedly active.
4. When results are obtained, it favorably influences all the manifestations of hay fever in the larger number of cases, while in a smaller class, one or more of the symptoms seem to be most markedly influenced.
5. When given during the attack of hay fever irrespective of its severity, it produces palliation rather than cure.
6. When successfully used during one season, it does not prevent the reappearance of the disease the following season; although there is reason to believe that a slight influence in modifying future attacks does exist.
7. The antitoxin is effective in both powder and liquid form, but the latter is preferable, as it is staple, does not require a preservative, and is more convenient for the patient.

A Simple Means of Relieving the Earache of Acute Otitis Media.—Neumann (*St. Petersburger Medizinische Wochenschrift,* April 7; *Rev. N. Y. Med. J.,* May 19, 1906) has found a much more effective means of attaining the desired result. It consists in introducing into the external auditory canal compresses of cotton moistened with ordinary lead water, which are also applied to the concha and its vicinity. This solution is made extemporaneously by adding water to Goulard's extract forming *eau blanche.* This solution is heated to the boiling point, and a small piece of absorbent cotton, rolled into the shape of a cone about an inch long, is dipped into it, and then introduced into the auditory canal. The concavities of the external ear are next to be filled with small compresses, which are also moistened with lead water and applied as hot as the patient can bear it. Finally, the entire ear and surrounding parts are covered with three compresses, dipped in the same solution, but from which the excess of moisture has been removed by expression. One of them is placed in front of the ear, the other in the space behind the ear, and the third above the preceding two. The relief afforded by this is so great that the patient is enabled to await with tranquility the time for paracentesis or the spontaneous opening of the drum.

Some Anatomic and Physiologic Considerations of the Faucial Tonsil.—J. Gordon Wilson (*Jour. A. M. A.,* May 26, 1906.)—In this paper the author discusses some of the points bearing on the surgical anatomy and the physiology of the tonsil. The normal size of the tonsil is hard to determine, since few have escaped some irritation and inflammation. Its activity has been demonstrated at the end of fetal life, not only by the multiplication of lymphocytes in the follicles, but by the infiltration of leucocytes with the overlying epithelium. It is well developed at the end of the first year, but apparently does does not reach maturity and can only be said to be definitely developed about the fifth year. The tonsil is enveloped in a capsule of connective tissue, which is normally 1 mm. thick. From the capsule bands go off between the lymph-

follicles in which lie the blood vessels and lymphatics. Wilson believes the principal blood supply in man comes from the facial, either through a distinct tonsillar artery or more commonly from the tonsillar branch of the ascending palatine branch of the facial. The hemorrhage which occurs at times in tonsillar operations is due to an injury to the ascending palatine artery. Hemorrhage may also occur from injury to the branches of the lingual and superior palatine artery. In studying the secretions from the tonsil, the first fact that presents itself is that we have here a definite organ actively engaged in the production of lymphocytes. The germ centers of the follicles contain many cells undergoing mitotic division. From these follicles the lymphocytes may pass directly into the lymphatic system or through the mucous membrane into the mouth. As far as our present knowledge goes, the first do not appear to differ in any way from those secreted by the follicular glands. As for the latter, we have no definite knowledge, as it may be more of an excretion than a secretion.

On Regional Anesthesia of the Larynx.—Frey (*Archiv. fuer Laryngologie und Rhinologie*, Band. 18, Heft. 2.)—After discussing the various methods of anesthetizing the larynx, the author describes a new method, which consists of hypodermic injections of weak solutions of cocaine in the region of the superior laryngeal nerves as they enter the thryo-hyoid membrane. The technique is as follows: The patient sits in a chair and the operator stands at the patient's left while palpating the left side of the neck, in order to find the greater horn of the hyoid and the upper horn of the thyroid cartilage. Midway between these two points the hypodermic needle is inserted, holding the syringe horizontally and going directly backward, about 1 cc. of a one to one-half per cent. solution of cocaine, containing ten per cent. of adrenalin chloride is injected. The same amount is injected in the other side. Anesthesia is complete in about ten minutes. The author has employed this method in thirty cases and concludes as follows:

1. It is possible to arrest the function of the superior laryngeal nerve by deep injections of a one per cent. solution of cocaine and adrenalin at the point where it enters thyro-hyoid membrane and thereby obtain a regional anesthesia of the larynx.
2. This method has the advantage that relatively small and accurate amounts of cocaine with adrenalin can be employed. The anesthesia is complete.
3. The duration of the anesthesia averaged about twenty minutes.
4. One disadvantage is that it requires some time before the anesthesia is complete.
5. The author believes that the method is suitable for all endolaryngeal and intratracheal manipulations, including bronchoscopy. It is specially indicated in cases where the application of cocaine on an applicator is not well borne. Also in cases of foreign bodies.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF
MARTIN F. ENGMAN, M. D.

SOME CLINICAL ASPECTS OF SYPHILIS.—Wild (*British Jl. of Dermat.*, May, 1906.)—The basis of this paper is 1,050 consecutive cases of syphilis. The writer recites some interesting cases from this abundant material. From his observations in congenital syphilis he concludes that mercury is more valuable than iodide, though the lesions may be ulcerations of a tertiary type. He says that we are apt to look upon syphilis in children as congenital, but we often forget the possibilities of children acquiring syphilis from other members of the family. He calls attention to the co-existence of syphilis and psoriasis and other rashes of non-specific character. He looks upon frambœsial lesions in syphilis as papules infected by some pyogenic organism, probably a streptococcus. He has examined the pus from several cases and found streptococci. Erysipelas is a frequent secondary involvement of this form of syphilitic lesion. He is impressed with the frequency of the co-existence of trauma and syphilis, and he suggests that trauma is often an exciting factor. This most frequently occurs in lesions below the knee and on the hand, especially the palms and soles, and are exceedingly hard to cure. The various forms of seborrhœic dermatitis and acne rosacea are the commonest inflammatory lesions which complicate tertiary syphilis and often seem to precede and determine the specific outbreak. He considers smoking a contributing factor to syphilitic leukoplakia lingualis. He finally wishes to refer to the curious fact that in nearly 600 cases of tertiary syphilis affecting the surface of the body, only three showed the symptoms of disease of the nervous system. He says as the skin and the central nervous system are both epiblastic tissues, it is interesting to inquire whether the severe skin lesions may not possibly exercise a beneficial effect by sparing the more delicate and important tissues of the nervous system from the influence of the syphilitic poison. In discussing the treatment of syphilis he says the difficulty in estimating the relative value of different methods is largely due to the fact that most cases of primary and secondary syphilis will recover sooner or later spontaneously without any treatment whatever. This tendency to recover naturally is undoubtedly the explanation of the great success claimed for various methods of treatment, especially those in vogue in England during the first quarter of the last century, when there was a great reaction against the use of mercury. He remarks that it is a curious fact that sarsaparilla and some other drugs which have had a reputation as anti-syphilitics in their native countries should all contain saponius, a group of toxic glucosides which have a very powerful and peculiar action upon the blood corpuscles. Some of the saponius are not very staple bodies, and as regards sarsaparilla he has found that the dry drug varies widely in its activity, as shown by the saponic action, and on keeping it may become inert. While he admits that many cases of syphilis will recover without mercury, he has no doubt whatever that the duration and severity of both primary and secondary symptoms are much lessened by its use, and that above all the liability of tertiary le-

sions, though not entirely prevented, is much diminished. He believes that mercury should be given until slight soreness and swelling of the gums is produced, and so long as this is produced it does not matter how the mercury is administered. In ordinary cases he prefers alimentary administration. He says the action of iodides in syphilis does not appear to be of a specific nature, but only a part of a more general action in absorption of the lower organized cellular infiltration, and the indication for iodide is the presence of cellular infiltration to promote absorption. He calls attention to the feature of treating only the disease to the neglect of the patient. Therefore, the general health should be closely watched.

Report of Two Cases of Larva Migrans, with Special Reference to the Treatment.—Hutchins (*Jl. of Cut. Dis.*, June, 1906.—The first case was that of a boy who contracted the trouble in Florida. The larva progressed about an inch a day, the inoculation being upon the ulnar side of the palm. The second patient was a farmer from North Georgia. He developed a number of burrows on the leg. The author used an injection of cocaine behind the larva and the subsequent injection of a few drops of chloroform. This, to him, seems the ideal treatment.

Erythema Perstans.—Wende (*Jl. Cutan. Dis.*, June, 1906.—The writer presents in this paper two cases of erythema perstans occurring under his observation, and some similar cases previously reported by various authors. He concludes from his observations that in this condition we are dealing with a variety of skin affections which may be included under the general name of erythema perstans and which have points both of differences and of similarity. In some there are simply chronic inflammatory patches, in others diffuse patches of papules or nodules; frequently evolution begins with the center and leaves annular or gyrate figures. There seems to be no law governing their duration since they may last weeks, months or years, or during the entire lifetime of the patient. The etiology may still be considered as obscure, although the suggestions relating thereto are numerous. No age is exempt; cases have been reported in children and in those advanced in years. The condition seems to be more frequent in men than in women. The study of the cases reported shows that the condition may be caused by intestinal toxemia, gouty or rheumatic diathesis and atmospheric changes. The limited number of microscopical examinations that have been made reveal slight differences. In all the cases we have a superficial inflammation, dilatation of blood vessels, infiltration of cells, and association of edematous conditions.

Gonococcic Warts.—Pagliaro (*British Jl. of Dermat.*, May, 1906.)—This patient was a woman, 56 years old, who had had a vaginal discharge which caused intense itching of the parts for a year. Recently whitish, fleshy masses formed upon the labia, the size varying from that of a minute seed to a lentil. There were also a few warts upon the perineum. The growths were removed nine times before they finally disappeared. In the scrapings, colonies of gonococci were found in the pus and in the tissues of the epithelium of the warts.

MEDICAL LAW AND MEDICAL JURISPRUDENCE.

IN CHARGE OF

IRVIN V. BARTH, LL. B.

WHAT CONSTITUTES PRACTICING MEDICINE.—NO VESTED RIGHT IN THE PRACTICE OF MEDICINE.

State of Missouri vs. John M. Davis (January call 1906, Supreme Court of Missouri.)

Defendant was charged with having practiced medicine in the State of Missouri without a license in the month of December, 1904. The defendant, who lived in Hamilton, Ill., came to Missouri, secured quarters at a hotel in Memphis, Scotland County, Missouri, and then and there held himself out as a doctor of medicine. One H., suffering from blood poisoning, requested his services. Defendant examined the patient, diagnosed his case and prescribed for him, soon thereafter returning to Illinois. The prescription for medicine was in the form of a blank, which was required to be sent to the State of Illinois and thereupon the defendant would send the bottle by express. H. took the medicine according to defendant's directions and according to the directions on the bottle, paying for the treatment at the rate of $5 per month. Defendant came to the hotel in Memphis for the purpose of seeing H. once every month.

Defendant was not a registered physician in Missouri, nor had he been licensed by the State Board of Health. His claim to the right to practice in Missouri was based upon the fact that before he moved to Illinois, as early as 1857, he had followed his profession in St. Louis and had secured a vested right in the practice, which the act of 1901 could not constitutionally disturb.

The court held, (1) That defendant was practicing medicine in the State of Missouri as contemplated by the statute, and, (2) That the statute did not deprive defendant of a vested right and is constitutional.

"The practice of medicine as contemplated by the provisions of the statute governing that subject," said the court, "may consist only of an examination of the patient, diagnosing the cause of the trouble complained of, or by one professing to be a physician, seeing the patient at stated intervals and the indication and prescribing of remedies to be applied, and the acceptance of pay for such services. The mere fact that the remedies indicated and prescribed are sent from another state does not negative the idea that the defendant was practicing or attempting to practice medicine in this state. It would not be an uncommon occurrence for a regular practicing physician of this state to examine his patients, diagnose the cause of their illness, and then say to them, 'The remedies I indicate and prescribe, you must obtain from the State of New York.'"

With reference to the constitutionality of the question involved, the court said: "It is apparent that the General Assembly of Missouri, in the enactment of the provisions of law regulating the practice of medi-

cine and surgery in this State, intended to fix a standard as to fitness, skill and qualification, which would authorize the practice of that profession. This law does not undertake to deprive any person of a vested right, for there can be no such thing as a vested right in the practice of medicine. It does not undertake to suppress or prohibit the practice of medicine or surgery, nor to prohibit any particular person from practicing as a physician or surgeon, but it simply undertakes to require the necessary and essential qualifications for that purpose. . . . . It is clearly manifest that the defendant had no vested right to practice medicine in this state by virtue of his former practice here in 1857. Upon returning to this state to practice his profession, his qualifications, fitness and skill to do so must be judged by the law in force at the time he so returns and before he will be authorized to engage in the practice of his profession and reap the rewards from such practice, there is no reason why he should not comply with the conditions imposed upon him by the law in force at the time he so undertakes to engage in the practice."

NOTE.

The prosecution in the case decided was founded upon the act of 1901, which continues to be the statutory law of Missouri regulating the practice of medicine, surgery and midwifery. The law governing prior to that time was passed during the session of 1883. By section 9 of the act of 1883, a statutory definition of what constituted practicing medicine was made in the following:

"Any person shall be regarded as practicing medicine within the meaning of this act, who shall profess publicly to be a physician, and to prescribe for the sick, or who shall append to his name the letters 'M. D.'" The act of 1901 repealed entirely the act of 1883 and failed to offer any other statutory definition. This omission is to be regretted—it takes away from the act much of its effectiveness, creates an uncertainty and opens the way for evasion, such as was attempted by the defendant in the above.

That no man has a vested right in the practice of his profession has been long established by the best considered cases. New conditions may always be imposed. The terms and conditions of the act of 1901 applied to all persons "except physicians now registered." The act of 1883 contained the proviso "that the provisions of this act shall not apply to those that have been practicing medicine five years in this state." The constitutionality of that provision was sustained by the Supreme Court of Missouri in the case of *State vs Hathaway,* (1893), 115 Mo., 36.

When Medical Proof is Unnecessary.

State vs. Bateman, May, 1906, *Supreme Court of Missouri.*

Medical proof of the actual perpetration of a rape is not necessary, when there is evidence of the crime as offered by the prosecuting witness and when the defendant, by his own admission, establishes, the fact that he had intercourse with the prosecutrix as charged, although it may have been with her consent.

Malpractice—Degree of Skill Required.

Dye vs. Corbin (*March*, 1906, *Supreme Court of Appeals of West Virginia*), 53 *S. E.*, 147.

Suit for ten thousand dollars damages for malpractice in the diagnosis and treatment of an injured ankle. Defendant was a practicing physician of Ritchie County, West Virginia. After examining plaintiff's ankle, defendant stated that same was dislocated, but not broken. Though plaintiff requested it, defendant refused to procure another physician and to administer an anæsthetic. Defendant bandaged the ankle and some days after placed the limb in a cast of plaster of Paris, telling plaintiff that he might then go about wherever he pleased. The limb began to pain and several months thereafter plaintiff consulted two doctors in Cincinnati, who testified that "the head of the fibula was broken off and was turned backwards." An amputation afterwards became necessary.

The only evidence offered by plaintiff with reference to the alleged malpractice proper was the testimony of the two Cincinnati physicians. Nothing more was elicited from them than that the treatment was attended with more pain to the patient, because an anæsthetic was not administered.

The court held that in the absence of a special contract, defendant is "only required to exercise such reasonable and ordinary skill and diligence as are ordinarily possessed and exercised by the average members of the profession in good standing, in similar localities and in the same general line of practice, regard being had to the state of medical science at the time." And the burden is upon the plaintiff to establish such negligence and want of skill.

Here the plaintiff failed to establish negligence in accordance with the standard prevailing in the locality where the treatment was given or in like localities. The witnesses were Cincinnati physicians. "If these physicians," said the court, "meant the standard existing in Cincinnati, a large city, where they knew and were familiar with the practice, then such standard fixes no liability on the defendant."

The plaintiff further failed to show that under the conditions existing at the *time* of treatment the defendant was negligent. The Cincinnati physicians had not seen the patient until four months after the treatment by defendant. Moreover, though there may have been a mistake in diagnosis, it was not shown to have been an error of judgment inconsistent with the degree of skill which it is the duty of the physician to possess. "Where a physician exercises ordinary care and skill, keeping within the recognized and approved methods, he is not liable for the result of a mere mistake of judgment."

NOTE.

The general doctrines announced in the above are in accord with the recognized and established principles in the law governing malpractice. Some question has arisen concerning the standard of care where the diagnosis or treatment may differ according to the practice of different schools of medicine. It has been held generally that this must be measured by the principles only of that school of medicine which the

defendant sought to apply and in which he professed to be skilled. As a corollary the courts have held that practitioners of any one school of medicine are as a general rule incompetent to testify concerning the diagnosis and treatment by a member of another and distinct school. But this does not obtain where the defendant may not be a follower of what may be called a "school" of medicine, or where the diagnosis and treatment in the different schools are identical. Two recent cases in Missouri illustrate in an interesting way the application of this doctrine.

In *Longan vs. Weltmer* (1904), 180 Mo., 322, where plaintiff was greatly injured by the unskillful treatment of defendant, a magnetic healer, plaintiff was not required to show that the treatment received was not proper or usual *in magnetic healing*, but it was sufficient to show that it was not proper to be given *in any case* to one in plaintiff's condition at the time.

Defendant did not belong to any school of medicine. It was then held to be perfectly proper for any physician, competent from education and experience, although he did not claim or pretend to know anything about the practice of magnetic healing, to testify concerning the treatment given in that case.

Following this was the case of *Granger vs Still* (1905), 187 Mo., 197, where plaintiff charged that she was negligently, unskillfully and improperly treated for hip dislocation by an osteopath. Physicians other than osteopaths were called upon to testify as to the diagnosis and treatment by the defendant in this case. Defendant offered objection. Plaintiff offered to prove that osteopaths use the same text books as other schools of medicine and also that they have no fixed rule of practice for the treatment of hip joint diseases. In either view of the facts, the court held the physicians competent to testify. In substance the court reasoned that if osteopaths teach the same text books as other schools of medicine, then physicians of other schools are competent witnesses to express an opinion as to the correctness of the diagnosis and treatment of hip diseases by an osteopath. On the other hand, if osteopaths have no fixed rule of practice for the treatment of hip diseases which osteopaths must adhere to, then they would not constitute a school of medicine, and on the authority of *Longan vs. Weltmer,* supra, regular practitioners of medicine and surgery are competent witnesses to testify as to the correctness of a diagnosis and treatment of hip diseases by an osteopath. But accepting the fact rather that they constitute a distinct "school," they "are not competent to express an opinion as to the treatment of the plaintiff by the defendant, unless it should appear that both the schools to which the witnesses and the defendant belonged employed the same treatment."

BOOK REVIEWS.

SCHUMANN'S MEDIZINISCHE VOLKSBUECHER. Verlag von J. F. Wilhelm Schumann, Leipzig.

This is a series of small monographs on various subjects in medicine and hygiene, written for the laity. If the public must read medical books (and, apparently the public *will*), it is just as well that good ones should be provided for their edification.

In the series are various monographs on the various infectious diseases and studies in public and personal hygiene which would appear to have distinct educational value. It appears questionable, however, whether there is any occasion for offering a lay public a monograph on diseases of the liver, or one on tabes, both of which are included in the series.

The books are well gotten up, the old German script being used. The average price per volume is Mk. 50, so that the books are within reach of the people who want them, and accessible to those who need them, if such there be.

REFERENCE HANDBOOK OF THE DISEASES OF CHILDREN. For Students and Physicians. By Prof. Dr. Ferdinand Fruhwald, Chief of Clinic in the Vienna Polyclinic. Edited with additions by Thompson S. Westcott, M. D., Associate in Diseases of Children in the University of Pennsylvania. With 176 illustrations. W. B. Saunders & Co., 1906. pp. 533.

Dr. Fruhwald's well known Kompendium der Kinderkrankheiten, has enjoyed great popularity abroad, and its excellent translation will do much to win for it deserved favor here. As the author states, the book is not designed to take the place of a text book; its object is to serve as a convenient clinical guide. The alphabetical arrangement of the subjects, with the numerous cross references, make the book a very convenient one for ready reference, and the immense clinical experience of the author gives the weight of authority to his views. While the work is necessarily somewhat condensed, it is noteworthy that special attention is given to therapy, and indeed the book may fitly be said to represent the therapeutic views of the Vienna school today.

Dr. Westcott's translation is admirable, and its clearness adds greatly to the pleasure of a reading of the book.

The book work is quite up to the standard of the publishers.

MEDICINISCHE BIBLIOTHEK FUER PRAKTISCHE AERZTE. Published by C. G. Naumann in Leipzig.

This "Medical Library" consists of monographs which appear periodically. They are written by eminent specialists and mostly devoted to problems of practical importance. One hundred seventy numbers of the series have now appeared, each comprising approximately 80 pages and being sold for the very low price of 50 pfennige (about 12 cents). The two numbers before us, "First Aid in Serious Injuries," by Dr. Winkelmann, and "Vaccination and Its Technique," by Dr. Blass, Director of the Royal Vaccination Institute of Leipsig, are excellent representations of the two subjects.

A MANUAL OF MEDICAL JURISPRUDENCE, INSANITY AND TOXICOLOGY. By Henry C. Chapman. Third Edition. W. B. Saunders & Co., Philadelphia.

The main value of this book lies in its first part, that of medical jurisprudence. The author, in his concise way, presents real information and instruction, much of it on points not generally treated of, which are, nevertheless, affairs of great importance.

ON LEPROSY AND FISH-EATING. A Statement of Facts and Explanations. By Jonathan Hutchinson. W. T. Keener & Co., Chicago. Price, $3.25.

If we want to be sincere we must admit that we know little about the origin and nature of lepra. We talk about the etiologic factor of the lepra bacillus, and its constant presence in characteristic lesions in leprous individuals doubtless justifies this belief. If statistics on conditions that occur far apart and under most various internal and external circumstances mean much, we have a right to assume the great probability of the etiologic factor of this bacillus. Hutchinson, whose well-known ideas are presented in this book, acknowledges this, but his assumption of the entrance of the bacillus into the human organism by putrid food in the form of not well preserved fish is the point of issue. He has collected during his life, for more than 40 years devoted to this problem, an immense amount of material which is utilized by him to construct circumstantial evidence to prove the transmission of the disease through spoiled fish. We know almost fully the course of the disease, and know to a degree that it is specific and produces conditions like other bacterial and chronic infections. It seems also that its direct infectiosity, or perhaps contagiosity, is also established. Certain it is, however, that in no case has a direct evidence to prove these facts been produced. The mysteries of lepra are deeper than those of other infectious diseases. Great care, therefore, must be exercised when placing a single factor in the foreground, without direct proof, that in its inner nature is so very improbable in view of the knowledge we possess of the character of other and certainly analogous conditions. Historically Hutchinson's book will live forever. It cannot be said, however, that his views will turn the investigation of the etiology of lepra in the direction which the circumstantial evidence collected by him suggests to him is the only correct way.

THIRD TREATISE ON THE EFFECTS OF BORAX AND BORACIC ACID ON THE HUMAN SYSTEM. By Dr. Oscar Liebreich. Translated from the German. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1906.

Liebreich's work is instructive evidence of the difficulties obtaining in drawing results from experiments like those made on a large scale by H. W. Wiley on the effect of boracic acid and borax on the human organism. Although Wiley himself was able, by tightening the screws on his results very closely, to suggest a small extent of deleterious action of these substances, it was so slight that the impartial reader will not be convinced that they can be made the basis of wide-reaching measures. Liebreich has convincingly shown by his critical investigation that many steps taken in Wiley's experiments are methodically objectionable, and that certain conclusions are based on false calculations. As no lasting injury to health was shown, on the contrary persons experimented upon were better after seven months than before the experiments began, we must admit that the whole affair resulted in benefit only to the news-mongrels of the public press.

LECTURES ON TROPICAL DISEASES. Being the Lane Lectures for 1905. Sir Patrick Manson. Chicago: W. T. Keener & Co. 1905.

Manson's book gives an authoritative discussion of the greater number of tropical diseases, as was to be expected from a writer who has contributed so much of foundational importance to the subject. What makes the book so attractive is the form of language used making the reading exceedingly fascinating. The discussion in a number of places may appear incomplete to some, but this is due to the time at which it was written, almost one and one-half years before it appeared in print. The study of many especially infectious tropical diseases has added so much essential material to the subject during the last year that Manson's book cannot be said to be now "up-to-date," although at the time it was delivered in the form of lectures it represented almost the total of our knowledge.

ARCHIV. F. HYGIENE. Edited by f. Gorster, M. Gruber, Fr. Hofmann u. M. Rubner. Vol. 55. 1906. Muenchen and Berlin. Verlag. R. Oldenburg. Price M. 15.

A review of the contents of this volume is not possible without occupying a space exceeding the limit at our command. The Archiv has been a leading medium since its first volume and has kept up its reputation. The volume just completed widens our knowledge in the first place by Uffenheimer's paper on his studies of the permeability of the gastro-intestinal tract of new-born animals for bacteria and genuine proteids. It is the first work in this line that offers a real basis for further investigation. Among other contributions, Friedemann's paper on organic proteid and food-proteid deserves great consideration while his studies on the precipitation of proteid by other colloids may be the beginning of an elucidation of the reaction of immune bodies.

ZEITSCHRIFT FUR BIOLOGIE. Edited by C. Voit. Vol. 47. New Series, Vol. 27. Muenchen and Berlin: R. Oldenburg. 1906. Price, 20 marks.

The object of this work has been from its beginning the publication of investigations of biologic problems in the widest sense. It has always been limited to this line of work and any comment referring to the wealth of material published and the stimuli given by it is to the initiated unnecessary. In biology we do not want theories and hypotheses, but must have the gradual succession of the establishment of facts which will finally lead to logical conclusions. This is the reason why the trend of this publication is in the line of exact although often very limited investigations that mostly attempt to trace back biologic phenomena to physical and chemical reactions. In the common conception of biologic problems this phase is only too often neglected and the Zeitschrift is one of the most important means through which to keep the trend of work in lines controllable by principles fundamental and final. The latest volume contains a great number of single contributions, but to detail them singly would be impossible for one individual. In their entirety they have greatly enlarged the compass of our understanding of biologic processes and will form the basis for wider recognition of the necessity of using exact methods in the study of biology.

NASAL SINUS SURGERY, WITH OPERATIONS ON NOSE AND THROAT. By B. Douglass, M. D. Illustrated with 67 half-tone and colored plates. Cloth. Pp. 264. Price, $2.50, net. F. A. Davis & Co., Philadelphia. 1906.

In this little volume of 264 pages the author gives in a brief and concise form the anatomy of the nose and accessory sinuses, with special reference to the points of surgical interest. The anatomy of the sinuses and their relation to the nasal cavities, orbits and the brain are illustrated by fine photographic half-tones of anatomic preparations. A special chapter is devoted to each of the sinuses. A historical sketch with the special anatomy and the various methods of examination and diagnosis are discussed at length. Both the conservative and radical methods of treatment are given careful consideration. Most of the classical operations are described in detail.

The subsequent chapters are devoted to the operations on the nose proper. The older methods of operation on the deflected septum are discussed at length, but the modern submucous resection of the septum is dismissed in as brief a manner as possible. Why this should be we fail to see, as this operation has been received with greatest enthusiasm the world over. The external deformities of the nose are given special attention. This portion of the work deserves special mention. A special chapter is devoted to tracheotomy and laryngotomy, and is beautifully illustrated with colored plates.

This little volume is a very acceptable addition to the literature on these special subjects.

THE MEDICAL DISEASES OF INFANCY AND CHILDHOOD, WITH POINTS ON THE ANATOMY, PHYSIOLOGY AND HYGIENE PECULIAR TO THE DEVELOPING PERIOD. By Alfred

Cleveland Cotton, A. M., M. D., Professor of Pediatrics, Rush Med. Coll., Univ. of Chicago, Attending Physician for Diseases of Children, Presbyterian Hospital, Consultant to the Central Free Dispensary, etc., etc. J. P. Lippincott Co. 1906. Pp. 670. Illustrated. Price, $3.50.

Dr. Cotton's contributions to pediatric literature have been numerous and valuable, and the appearance of his book was therefore awaited with much interest. It was to be expected that the chapters on anatomy and physiology of infancy and childhood would be especially valuable, and indeed, the first fifteen chapters of the book, dealing with these subjects, really form a most important addition to modern pediatric literature. This part of the book will be most useful, not only to the student, but also to the practitioner desiring a handy book of reference on this important branch of pediatrics. Chapter 13—on the care of the mouth and naso-pharynx, of the feet and legs, on the development of secretions, and change of diet in later infancy, and chapter 14—concerning education and the capacity for attention in children, are especially valuable. In the discussion of infant feeding, the teachings of the American school are considered at length. The author concludes that percentage feeding—"while founded upon a misconception of the identity of constituents of cow's milk and mother's milk, is still, now that these differences are better understood, by far the best method of feeding with the best of all substitutes." The various diseases of childhood are succinctly but clearly treated in part two, and the latest literature is frequently referred to.

In the appendix, sick room hygiene is considered, general rules of dietetics for children given, with recipes, and a formulary of some simple prescriptions added.

The book work is most excellent, indeed the publishers are to be highly commended for having produced such a book at the price asked. The book is sure to be widely read, and as generally appreciated.

Die Karikatur und Satire in der Medizin.—Mediko-Kunsthistorische Studie von Dr. Eugen Hollaender in Berlin. Mit 10 farbigen Tafeln und 223 Abbildungen im Texte. Verlag von Ferdinand Enke. Stuttgart. 1905. Price: Mks. 24.

It is that obvious disproportion between the gigantic and ideal aim of medical science, to fight death, and its comparatively small actual achievements, which from oldest times up to the present day has rendered the physician a suitable object of ridicule to his fellow beings. Caricature and satire are today recognized as most valuable sources of information to the historian. The medical historian, however, so far has failed to make use of this interesting material. With an energy, judiciousness and diligence, which cannot be praised too highly, Hollaender has collected cartoons, poems and other art products which deride the medical man and his art. He arranged them so that they give a consecutive account of the gradual development of our science, including, of course, also the history of the many illegitimate fads and "special schools."

In reviewing another essay of the same author, his "Medicine in the Classic Paintings," we had occasion to mention his excellent style and the unsurpassed beauty of the illustrations. These two commendable features are not lacking in this new volume, and together with the wealth of information render the perusal of this book one of rare pleasure.

Atlas und Grundriss der Gynaekologischen Operationslehre. Von Dr. Oskar Schaeffer in Heidelberg. Mit 42 Tafeln und 21 Textabbildungen. Muenchen, J. F. Lehmann's Verlag. 1902. Price: Mks. 12.

This is volume 28 of the famous collection of Hand Atlases, published by Lehmann in Munich, known in this country in their English translation as Saunder's Hand-Atlases. This is a volume of special excellence. The illustrations are clear and plastic, the accompanying text comprehensive. Practically all gynecologic operations of any importance, both the abdominal and vaginal methods, are ably presented.

TEXTBOOK ON THE PRACTICE OF GYNECOLOGY. For Practitioners and Students. By William Easterly Ashton, M. D., LL. D., Professor of Gynecology in the Medico-Chirurgical College, Philadelphia. With 1046 new Line Drawings by John V. Alteneder. Second Edition. Philadelphia. W. B. Saunders & Co., 1906.

That the general practitioner and especially the student has appreciated this latest work on gynecology is well proved by the fact that within six months the preparation of a second edition has become necessary. This second edition is practically a reprint of the first edition, the changes being limited to the correction of several typographical errors and the alteration of a few drawings.

A COMPEND OF OBSTETRICS. By Henry G. Landis, A. M., M. D. Revised and edited by William H. Wells, M. D., Adjunct Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic. Seventh Edition. Illustrated. Philadelphia: P. Blakiston's Son & Co., 1901.

The various divisions of the subject have been rearranged and the little volume brought up to date by the introduction of the most recent teachings in the science of obstetrics. This has necessitated a slight enlargement of this excellent little compend.

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